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AUSTIN SMITH, M.D.

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ACUTE ABDOMINAL DISEASE

R. L. Sanders, M.D., Memphis, Tenn.

In general, acute abdominal diseases are of four pathological types: obstructive, infectious, hemorrhagic, and vascular. Frequently a combination of these types is observed, as in obstructions incident to infection and inflammatory edema, and in hemorrhagic pancreatitis. Together, they may produce that most serious emergency: peritonitis. The outstanding symptom of all acute abdominal disease is pain. The onset of the pain, whether gradual or sudden; its origin and distribution; its severity; and its type and duration, whether constant or remittent, are often of diagnostic significance, as are the time of onset of symptoms of nausea and vomiting; the type of the vomiting, whether profuse, projectile, or otherwise; and the contents of the material. Additional valuable information may be gained from a history of intestinal disturbances and from any abnormality of the color and contents of the stools. A careful investigation of the foregoing symptoms, correlated with the findings on physical examination, should enable one to arrive at a diagnosis. If time permits, laboratory and roentgen studies are useful to confirm the clinical findings.

In every instance of acute abdominal disease, the question at once arises: Is it a surgical emergency? Since all show pain, usually with nausea, vomiting, and intestinal disturbances, both the diagnosis and the distinction between those that will subside and those that require immediate or early surgery may be difficult. These problems vary with the different diseases and thus should be considered in relation to each. The limitations of space permit inclusion of only those diseases most often observed.

ACUTE APPENDICITIS

Errors in the diagnosis of acute appendicitis probably exceed those of any other acute abdominal disease, with the possible exception of acute pancreatitis. The errors are often due to atypical symptoms and physical and laboratory findings. As a rule, the attack is initiated by epigastric pain, followed by nausea and vomiting and later by localization of the pain in the right lower quadrant of the abdomen. I have observed that most patients also complain of gaseous distention, with a feeling of distress in the midabdomen such as is experienced after eating some food that is poorly tolerated. A sense of complete cessation of intestinal function is also strongly suggestive of acute appendicitis. If the appendix lies in the pelvis, diarrhea may be an associated symptom. If the attack is fulminant, the patient will be prostrated immediately. Usually, however, the onset is gradual, the temperature is not elevated in the early hours, and the patient does not appear acutely ill. The leukocyte count is not a reliable diagnostic sign. This point is worthy of emphasis. The count may rise to a high level in some cases and remain within normal limits in others. Palpation elicits tenderness over the site of the appendix. Tenderness in the flank indicates a high-lying, retrocecal appendix, while tenderness in the pelvis on digital examination suggests a low position. Rebound tenderness is a significant sign.

Acute appendicitis may resemble almost any other abdominal disorder, including cholecystitis, diverticulitis, acute amebiasis, or even a malignant lesion with perforation. The diagnosis of such cases, however, should be clarified easily by a thorough history and by roentgen and laboratory studies. A clinical picture almost identical to that of acute appendicitis is presented by mesenteric adenitis in children. This condition may be suspected if the appearance of the child suggests insufficient nourishment and if there is a history of poor appetite, constipation, and irregular attacks of cramping pain. Strangely, although the patient will ultimately recover after appendectomy and appropriate medical treatment, he may continue to have attacks of pain for some time, and the family should be so advised. The acutely inflamed appendix is removed as soon as the diagnosis is made, preferably through a McBurney incision. Drainage is unnecessary unless perforation has taken place.

ACUTE CHOLECYSTITIS

With few exceptions, attacks of acute cholecystitis are induced by obstruction of the cystic duct by a stone. The exceptional attacks are provoked either by angulation of the duct or by strangulation and edema from a chemical reaction, at times with a superimposed infection. In the latter type, the chemical reaction may be incited by a reflux of pancreatic secretion into the duct, though probably a concentration of bile salts in the

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biliary tract is more often responsible. In any case, an acute attack may either subside with medical management or become a surgical emergency. The diagnosis of acute cholecystitis is made by the symptoms of upper abdominal pain, usually radiating to the shoulder area, and of nausea and vomiting, fever, muscular rigidity, and tenderness in the gallbladder region. A history of previous symptoms of cholecystitis, supplemented by roentgenologic demonstration of stones, aids in establishing the diagnosis.

The general principles of treatment of acute cholecystitis are identical to those of any other acute abdominal disorder. If the disease is fulminant, immediate operation is obviously required. In less severe attacks, I believe that operation is best performed within 48 hours after the onset; the risk is usually small, and convalescence proceeds smoothly. Since one cannot always clinically determine the exact status of the pathological process, early operation may preclude a perforation. On the other hand, if the patient's symptoms have not become severe within 48 hours after onset, the attack will probably subside under conservative treatment. If no abatement occurs within 72 hours, however, surgery should be undertaken without further delay.

The findings that I regard as demanding immediate operation are: (1) sustained pain, (2) persistence of a palpable, tender mass in the right upper quadrant, with abdominal rigidity, (3) a systemic reaction, evidenced by an elevation of temperature and a rising leukocyte count, and (4) lack of clinical improvement despite the use of supportive therapy. Sustained pain, abdominal rigidity, and a tender mass point to impending perforation and thus are especially positive indications for surgery. At times, the gallbladder may be so high beneath the costal margin that a tender mass is not palpable; even so, other signs will suggest the need for exploration. If the symptoms subside with conservative therapy, the patient may be allowed time to recover more fully and may return later for an interval operation. In this event, the patient is warned that unless the gallbladder is removed the disease may be expected to progress and that recurrent acute attacks of cholecystitis are highly probable. At exploration cholecystectomy should be performed if at all feasible. Occasionally cholecystostomy may be advisable, as in the presence of other organic disease, especially in elderly persons. A heart ailment was formerly considered a major deterrent to removal of the gallbladder. This is no longer believed to be necessarily true; indeed, it has been found that cardiac symptoms often improve and may even disappear completely after cholecystectomy. If edema and inflammation are too extensive to permit proper identification of the biliary ducts and vessels, or if the gallbladder is greatly distended, it is best removed from above downward; or, in such cases, cholecystostomy may be the wiser course, particularly for the inexperienced surgeon.

PERFORATED PEPTIC ULCER

Pain, usually sudden in onset, which causes the patient to lie perfectly still, together with a board-like rigidity and exquisite tenderness of the abdomen but without alteration of the blood pressure or pulse, are symptoms so characteristic of a perforated peptic ulcer that the physician can diagnose the disease at once. If an operation is not performed immediately, the acute manifestations may subside to some extent after a few hours, though the abdominal tenderness and rigidity will persist, and a plain film of the abdomen will usually reveal gas beneath the diaphragm. If surgery is not undertaken at this stage, signs of bacterial peritonitis may soon follow.

Many perforations are quite small, leakage is slight, and the opening is protected by the under surface of the liver or by omentum or fat. In other cases the stomach contents escape above the liver, producing a subdiaphragmatic abscess that itself requires surgery. When an acute perforation is only partially protected, slow leakage into the peritoneal cavity may give rise to generalized peritonitis. In view of these possibilities, operative intervention should be an invariable rule. It has been my experience that the mortality of acutely perforating peptic ulcer increases in proportion to the number of hours elapsing between the perforation and the time of operation. The safe period is within six hours after the perforation. In a recent review of perforating ulcers observed over a period of 10 years, the operative mortality in my cases was 15.6%. All of the deaths took place during the first five years of the period. None of the patients who died were observed sooner than seven hours after the perforation; three were not admitted to the hospital until three days after the perforation. Earlier surgery might have saved all these patients.

I have had no experience with the conservative treatment of acutely perforating peptic ulcers, as advocated by some English surgeons. Perforations are often quite large, and, since one cannot determine their size, it seems dangerous to use the Levin tube with suction in the expectation that the opening will close spontaneously and the intraperitoneal fluid will be absorbed.

As a rule, I limit surgical treatment for perforated duodenal ulcers to closure and suture of a pad of fat or omentum over the area. The immediate necessity of saving the patient's life dictates this course, even though many of these patients require a subsequent operation. I feel, however, that resection is indicated when the patient is seen before signs of peritonitis appear, especially if the ulcer has perforated on a previous occasion. For perforated gastric ulcers, I prefer to perform resection because, in my opinion, all gastric ulcers are potentially malignant.

ACUTE INTESTINAL OBSTRUCTION

By far the commonest cause of acute intestinal obstruction is adhesions. Hernias, intussusceptions, volvulus, tumors, and other conditions are together responsible for less than half the cases. Obstructions in the duodenum and jejunum may generally be relieved by intestinal intubation. Those in the ileum may also be relieved temporarily by intubation, though sooner or later they usually require surgical release. Prolonged use of the Miller-Abbott tube should be avoided, as it may give one a false sense of security that may result in surgery being delayed too long.

In the first few hours after an acute obstruction occurs the patient may not appear acutely ill, and the pulse, respiration, temperature, blood pressure, and leukocyte

count may remain normal. Distention may be apparent only on examination. Some rigidity will be found, but no tenderness. The condition should be recognized, however, by the symptoms of colicky pain and vomiting, often with an audible and visible peristalsis, and by the palpable distention and rigidity. If the obstruction is low, the vomitus may be delayed and fecal in type. If the obstruction is caused by a tumor or by intussusception, a mass may be detected by palpation. Frequently a low abdominal mass may be found by rectal or vaginal examination. As the blood supply of the intestine becomes damaged, the obstructive symptoms and signs grow more pronounced and the patient appears acutely ill. The colic increases in severity, and between the attacks the patient experiences constant pain to a lesser degree. The vomiting becomes more violent, the abdominal rigidity and distention increase, and palpation reveals tenderness and a mass. The temperature and leukocyte count rise. These are the signs of early strangulation.

In some cases the signs of strangulation appear almost from the beginning of the attack. In others, several days may elapse before the crucial stage appears. Frequently physical examination is the most important guide to the progress of the obstruction. Roentgenograms will help to show its location and type; repeated at intervals, they may determine the degree of distention and indicate whether the obstruction is increasing. Unless surgery is obviously imperative, as in cases of obstruction from intussusception or tumors, or evident strangulation, conservative treatment is given while a close watch is maintained. If the pain and other symptoms do not subside after several hours, surgery is usually advisable. If at any time they rapidly become severer, operation should not be delayed further. On exploration, if the blood supply of the intestine is not seriously damaged, removal of the cause of the obstruction should be sufficient; otherwise, resection of the involved portion is indicated.

ACUTE PANCREATITIS

Acute pancreatitis is indicated by a sudden severe epigastric pain, often referred to the back, and unlike that associated with any other acute abdominal disease. Other manifestations are persistent nausea with projectile vomiting, abdominal tenderness and distention, rapid pulse, and cyanosis. Because of its location, palpation of the pancreas is seldom possible until late in the course of the disease. There is one physical finding, however, that points to acute pancreatitis; the abdomen has a doughy consistency, rather than rigidity. In most cases an elevated serum amylase level, the cause of the cyanosis, may be found within two hours after the onset of the attack. Usually the serum lipase and calcium levels are also elevated. With this blood picture and the physical symptoms and signs, the diagnosis of acute pancreatitis should not be difficult. The greatest diagnostic problem is that of distinguishing the pancreatic lesion from acute gallbladder disease. Furthermore, acute pancreatitis is frequently associated with acute cholecystitis either primarily or secondarily. The clinical findings may also strongly suggest acute intestinal obstruction, an acute perforation of a peptic ulcer, or coronary occlusion. Any doubt about these conditions, however, may usually be resolved by roentgenograms of the gastrointestinal tract and by an electrocardiogram.

Opinions vary widely as to the indications for surgical intervention in acute pancreatitis, even among surgeons. In the early stage of the disease, the acute attack will usually subside in a few days with medical treatment. Later, the process may become fulminating, ending quickly in death, or the attacks may recur repeatedly, in which case the intervals between the attacks become increasingly shorter and more or less severe pain and gastrointestinal disturbance is experienced in the intervals. A chronic course of attacks indicates that the pancreas has undergone serious pathological changes. Surgical treatment of the pancreas itself is of no benefit. If there are associated gallstones, removal of the stones and drainage of either the gallbladder or the common duct will often cause the pancreatic disease to subside. A pseudo-pancreatic cyst may develop, usually in the left upper quadrant of the abdomen, several days or weeks after the attack. Drainage of the cyst may be effected either to the surface or by anastomosis of the cyst wall to some portion of the intestine.

MESENTERIC VASCULAR OCCLUSION

Mesenteric vascular occlusion, which is caused primarily by embolism, is observed oftenest in persons with arteriosclerosis, myocarditis, vegetations on the valves, or some other vascular or cardiac disorder. Diagnosis is seldom made before operation because of the similarity of the symptoms to those of other acute abdominal conditions, particularly intestinal obstruction, strangulated hernia, and acute appendicitis.

The pain of mesenteric vascular occlusion usually begins in the mid-abdomen and is gnawing in character, severe, and unremitting. In the early hours, hyperperistalsis, possibly associated with diarrhea and the passage of blood, may occur. Later the pain becomes localized over the involved portion of the intestine, accompanied by involuntary muscle spasm, and the abdomen is silent. An elevated leukocyte count and temperature and other signs of shock indicate present or impending gangrene. Diagnosis is best established by a serum amylase test to rule out acute pancreatitis, an electrocardiogram to rule out coronary occlusion, and a plain film of the abdomen to rule out perforated ulcer and to show the dilation of the intestine.

The treatment is resection of the diseased segment of bowel and mesentery with a wide margin of normal bowel and mesentery on both sides. The entire intestinal tract is examined for additional thrombi, and an effort is made to resect all the involved areas. Anticoagulants are given postoperatively to prevent progression of the vascular occlusion.

TWISTED PEDICLE OF AN OVARIAN CYST

In most cases, torsion of an ovarian pedicle is induced by unusual exertion, such as a sudden bending and twisting movement. Occasionally other factors, such as trauma or pregnancy in which the pedicle becomes lengthened, are responsible. The torsion may be sudden or gradual in onset, and of varying degree. Sudden severe torsion causes agonizing pain in the affected area,

accompanied by shock. Palpation reveals a pelvic mass and extreme abdominal tenderness, either generalized or localized over the mass. Later, abdominal rigidity and a rising temperature, pulse rate, and leukocyte count indicate impending gangrene. Uterine bleeding may accompany this phase. If the torsion develops slowly, the pain tends to be recurrent but becomes severe and constant as the torsion increases. Unless surgery is undertaken during this period, strangulation of the blood supply and gangrene of the pedicle will follow. The most likely diagnostic error arises from the symptomatic similarity of a twisted pedicle on the right to acute appendicitis. Other possibilities to be considered are rupture of an ovarian cyst, ectopic pregnancy, strangulated hernia, and stone in the ureter. Accurate diagnosis is often impossible before the abdomen is opened. The ovary and tube usually are involved in the pathological process and, if so, must be removed with the cyst.

RUPTURED ECTOPIC PREGNANCY

Ruptured ectopic pregnancy may be accompanied by a sudden profuse hemorrhage into the peritoneal cavity, exhibited by shock or fainting, or by a moderate blood loss over several hours or days, which may be followed by an acute hemorrhage. A history of one or more missed menstrual periods and of vaginal spotting a few days before the rupture is usually obtained. The history often includes pelvic inflammatory disease, a ruptured ectopic pregnancy or spontaneous abortion, or a long period of sterility prior to the present pregnancy.

In acute rupture, the outstanding symptom is pain of a tearing, stabbing character. The pain may be generalized or localized and is often referred to the shoulder. When localized, it is not always on the side of the rupture. Abdominal distention, nausea and vomiting, constipation, and urinary disturbances are commonly associated symptoms. In the subacute form, with mild or moderate hemorrhage, the pain is less severe and of a cramping nature; other symptoms and signs usually are proportionately less pronounced. As the hemorrhage continues, they may increase in severity. The temperature is usually normal in the beginning, though later it may rise appreciably, and this rise may be accompanied by chills.

Physical examination reveals more or less tenderness on the side of the rupture, depending on the extent of the hemorrhage. An adnexal or abdominal mass is generally found, the cul de sac presents a full, doughy sensation, and the cervix is tender. The history and clinical picture may deviate from the classical to such an extent that correct diagnosis is impossible prior to exploration. Acute pelvic inflammatory disease, acute appendicitis, torsion of an ovarian pedicle, ruptured graafian follicle or corpus luteum cyst, and various types of abortion are at times most difficult to distinguish from ruptured ectopic pregnancy. The blood cell count will suggest the extent of the hemorrhage; otherwise, laboratory tests are of little diagnostic value. Curettage is also unreliable. Colposcopy, however, may reveal blood and placental tissue in the pelvic area. If the pregnancy is sufficiently advanced, a roentgenogram may show the fetal skeleton outside the uterus.

The patient with symptoms and signs of massive hemorrhage should be operated on immediately. At the same time, transfusions sufficient to replace the blood loss should be given, with other supportive therapy. If the diagnosis is doubtful and the patient's condition permits, surgical treatment may be deferred from several hours to two or three days while symptomatic treatment is administered. The patient must be carefully watched, and if the symptoms and signs persist or become more pronounced, operation should be undertaken without further delay. As a rule, the surgical procedure should be restricted to removal of the blood and products of conception from the abdominal cavity, ligation of the bleeding vessels, and excision of the ruptured tube. The corresponding ovary, if diseased, may also be removed.

COMMENT

Although the picture of the acutely diseased abdomen is easily recognized, and despite all that has been said and written on the subject, the exact diagnosis is too often elusive; for example, the diagnosis of acute appendicitis, the commonest of all acute diseases of the abdomen, is erroneous in almost 50% of the cases. An exhaustive history, correlated with the physical findings, should obviate most of the diagnostic confusion, regardless of the organ involved by the acute process. Even when the diagnosis is correctly established, the physician and surgeon must decide whether operation should be undertaken immediately, should be delayed, or whether it is indicated at all. The life of the patient may depend on their decision. This paper is presented as a reminder of the salient points in the diagnosis and the indications for both medical and surgical treatment of the different types of acute abdominal disease, in the hope that it may help to answer some of the questions that often confront the physician and surgeon.

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Tuberculosis Control.—The death rate from tuberculosis continues to decline rapidly. Among the Industrial policy-holders of the Metropolitan Life Insurance Company, the death rate from the disease established a new minimum of 10.2 per 100,000 for the first 10 months of 1953—a reduction of more than one quarter in the past year alone and of one half in three years. . . . Despite the progress made against tuberculosis, it is estimated that there are still approximately 400,000 active cases in the United States. Moreover, in 1952 the number of newly discovered cases with active or probably active disease reported to State health departments totaled approximately 85,000, equivalent to a rate of 55 per 100,000 population for the United States as a whole. . . . Another fact of importance in the current tuberculosis situation is the increased proportion of deaths occurring in the late adult life, particularly among white males. More than half of all the deaths from tuberculosis among white males in the United States now occur after age 55, compared with about one-fourth in 1933, when nationwide figures first became available. Among white females about half the deaths now occur at ages 45 and over, compared with about one third in 1933. A similar trend is manifest among colored persons. Not only are older persons now the chief victims of the disease but they are also a major source of its spread.—Unfinished Tasks in Tuberculosis Control, *Statistical Bulletin Metropolitan Life Insurance Company*, November, 1953.

CONTROVERSIAL THYROID CONDITIONS

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During the 30 years since the founding of the American Goiter Association, marked progress has been made in the study of diseases of the thyroid gland. Most of this advancement has been made by members of the association. Yearly advances in the study of the thyroid gland have been presented at the annual session of the association. These proceedings are preserved in an appropriate binding and are available to all who wish to consult them. Many problems that pertain to the treatment of thyroid disease were thought to be solved or at least the treatment was considered satisfactory. Through the investigative trends of the diversified groups that comprise this association, controversial approaches to some phases of thyroid disease have been advanced. These controversial problems represent progress in our study of thyroid disease, and all are the result of progressive ideas by members of this association. This progress well demonstrates that medicine is not stagnant but always trying to improve on the known and tried.

HYPERTHYROIDISM

Exophthalmic goiter, or primary hyperthyroidism, has a different etiological factor than toxic adenoma, or secondary hyperthyroidism. It has a definite relationship to extrinsic factors, such as the thyrotropic hormone. In this type of hyperthyroidism the problem is different than that associated with toxic nodular goiter. Exophthalmic goiter is extrathyroid in origin and is related directly to systemic influences, while toxic adenoma is a pure hyperthyroidism of thyroid origin. In exophthalmic goiter the factors that precipitated the primary hyperthyroidism may again become active and result in recurrence, regardless of the amount of thyroid remaining. This may rise to as high as 10 to 12% after a conservative thyroidectomy or be reduced to less than 1% in the extremely radical type of thyroidectomy advocated by W. Bartlett.[1] It is only by total ablation of the thyroid gland that the element of potential recurrence can be eliminated.

When iodine (Lugol's) solution came into use as a preparatory agent for subtotal thyroidectomy, the surgical management was much simplified. It was observed that the hyperplastic gland possessed a striking affinity for iodine and, as the acini filled with colloid, hypertrophy and hyperplasia receded. Correspondingly, there was a reduction of hypermetabolism and clinical abatement of the systemic manifestations. The surgical approach therefore became less hazardous. Pole ligations were practically eliminated, multiple stage operations were required less often, and postoperative thyroid crises were seen less frequently.

With gland involution and vascular reduction, more accurate surgery could be done. Gradually a surgical technique was established that resulted in a progressive reduction in operative mortality, reduced incidence of nerve injury, fewer cases of parathyroid deficiency, and a progressively diminishing recurrence rate. The advantages of thyroidectomy are that it removes the goiter, the recovery is prompt, and malignant potentialities become negligible. The sooner the normal metabolic status is established the greater the probabilities that the exophthalmus will recede.

Jackson,[2] in a 20-year follow-up on 100 patients who had exophthalmic goiter treated by thyroidectomy, found only one that was not free of the disease; five had suffered recurrence, four had been reoperated on, and one had been treated successfully by roentgen therapy. Tinker [3] reported that, of 39 patients who had been operated on, 31 were free of disease 14 years after the operation. Pemberton,[4] in 1930, reported a recurrence rate of not over 5% in a series of 878 patients who were operated on.

Lahey,[5] in a report of 100 cases in 1932, noted recurrence in six patients and six cases of persistent hyperthyroidism after a 5 to 6 year postoperative period. Cattell,[6] in a two or more year follow-up of 381 patients, reports a 2.4% recurrence. I found, in a series of 100 cases of exophthalmic goiter five years after subtotal thyroidectomy, six instances of recurrence and two of persistent hyperthyroidism. Two recurrences were associated with pregnancy, and in one case there was a second recurrence. Two patients retained some degree of hyperthyroidism after the operation. After routine exposure of the recurrent laryngeal nerve at operation, a more radical operation could be done, and there were only two recurrences in 100 cases during a 4 to 10 year follow-up.

ANTITHYROID DRUGS

Subtotal thyroidectomy was, therefore, thought to be the ideal treatment for primary hyperthyroidism and continued so until the advent of the antithyroid drugs and radioactive iodine. The treatment is now controversial. There is a place for all three forms of treatment. Treatment in each case must be individualized from the point of view of the type of hyperthyroidism, age, marital status, and associated disease.

It has been evident in my experience that the antithyroid drugs are rarely suitable for continued administration. The essentials of protracted therapy are too demanding to both the patient and the physician. Few of either group are willing to meet the requirements when permanent remissions are not expected to exceed 50%. There were no permanent remissions in a series of 12 cases I observed that were treated for a year or more. All of these patients showed clinical evidence of recurrence of hyperthyroidism after discontinuance of medication. There are occasional instances when conditions are unsuitable for surgery, such as in pregnancy, old age, or youth. In these cases it is preferable to continue antithyroid drugs as a therapeutic agent over a period of time.

The monumental contribution of Astwood [7] is primarily related to the reduction of hypermetabolism and is a means of preparing severe grades of hyperthyroidism

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This paper was read as a presidential address before the American Goiter Association, Chicago, May 7, 1953.

Owing to lack of space, the bibliographic references have been omitted from THE JOURNAL and will be included only in the author's reprints.

for surgery. This drug bridges the gap between reduced hypermetabolism as obtained with iodine medication and complete reduction as observed with the antithyroid drugs. The patients who are prepared with the antithyroid drugs, therefore, undergo surgery under the same conditions as patients who have no hyperthyroidism. I have found several patients whose hyperthyroidism, either from resistance to the drug or inadequate treatment, was not satisfactorily reduced by antithyroid medication. In these instances I deemed it advisable to do a two-stage operation. Subsequently, from experience, I am sure I was deflected by pressure and haste from sufficient continuation of the treatment to restoration of a metabolic balance.

RADIOACTIVE IODINE

The advent of radioactive iodine for the treatment of hyperthyroidism has made the approach to this problem more controversial. For its adoption as the treatment of choice for this disease, it must have some definite advantages that excel surgery. The administration of radioactive iodine does not require hospitalization or operation. The hyperthyroidism should be controlled in 8 to 12 weeks. It does not act rapidly, and in severe grades of hyperthyroidism antithyroid drugs can be used in the interval to abate the hyperthyroidism. The radiation has a short penetrating quality of only 2 or 3 mm., which is largely of the beta rays. Consequently, there is no damage to the surrounding tissues. The iodine isotope concentrates in the thyroid almost exclusively, and other tissues, such as the trachea, esophagus, parathyroids, and the recurrent nerves are not affected. It has a half-life of only 8 to 10 days, so that in a short time it has lost most of its therapeutic effect. Little radiation is detected after a few weeks. The plasma, bone marrow, kidneys and gonads are not appreciably affected by the dosage used in treatment of nonmalignant hyperthyroidism. The body in no way receives as much radiation from radioactive iodine as it does from an abdominal fluoroscopic study and a gastrointestinal roentgen study. Its carcinogenic effect, if any (and it has not been proved to have any), would occur in the thyroid gland, since radiation elsewhere is negligible.

If cancer were to occur in the thyroid after irradiation, the surgical removal would be the same as in any case of thyroid malignancy in which radiation had not been used. A much longer period of observation from this point of view will be required, but to date carcinogenesis has not proved to be a contraindication to radioactive iodine therapy. Dobyns [8] and his associates found no evidence of carcinoma in thyroid tissue removed eight years after administration of radioactive iodine.

Hypothyroidism is a possibility regardless of dose estimation, but it is not frequent. Probably the incidence of hypothyroidism will not be higher than that associated with radical thyroidectomy, which has also the added potentiality of parathyroid deficiency and nerve injury. It would appear at the present time that this may become the standard treatment for exophthalmic goiter (Graves' disease) in most clinics and large medical centers. The final evaluation of this form of treatment will require many years of clinical observation. Lerman [9] says at present radioactive iodine is the preferred agent of treatment for patients whose condition does not warrant surgery. It is preferable for recurrent hyperthyroidism, in patients after middle life, and in those who for psychological reasons refuse surgery.

It has been employed by some in all age groups regardless of marital status, and the reports indicate no abnormal effect on subsequent pregnancy or progeny. It should not be given after the first trimester of pregnancy or to the lactating mother; the child's thyroid might not develop, and cretinism might result.

Thompson [10] states that this treatment is not advisable in instances of toxic adenoma except in exceptional cases. The adenoma remains and should be treated surgically if the condition of the patient is favorable. Rawson [11] states that the treatment of cancer of the thyroid by radioactive iodine is limited because the carcinomatous thyroid does not possess the same affinity for iodine as does the normal thyroid. The tumor tissue concentrates only a small amount of the isotope as compared to the surrounding normal gland. Rawson [11] reported that the thyroids of only 5 out of 12 patients took up any iodine and Ward [12] found that the thyroids of only 3 patients in 10 showed any measurable pick-up of radioactive iodine. Metastatic thyroid cancer will concentrate a larger amount of the isotope if the entire thyroid gland is removed. This concentration of the isotope may further be augmented if, after total thyroidectomy, prolonged treatment with a thiouracil compound is given before radioactive iodine is administered. It is a phase of treatment for unremovable metastasis.

SOLITARY ADENOMA

The solitary or discrete adenoma of the thyroid is not always a single lesion. Clinically it appears as a single discrete tumor, but at operation there frequently are small adenomas associated with the clinically palpable one. These are true tumors of the thyroid, but the frequency of malignancy is controversial.

Malignancy in nontoxic nodular goiter, however, has been reported by Cole [13] and Crile [14] to be as high as 17 to 24%, by Lahey,[15] 10%, and by Ward,[12] 16.6%. In children the frequency is even greater. Kennedy [16] reported 12 cases of cancer of the thyroid in 62 children aged 14 or less and Ward [12] encountered 40% in a group of 10 children under 15 years of age. I received pathological reports of 11 cases of carcinoma among 100 thyroidectomies performed for nodular goiter. Eight of these patients were between the ages of 17 and 29, and the oldest was 71 years of age.

Hinton and Lord [17] demonstrated that solitary adenomas of the thyroid that appeared benign clinically had a higher incidence of malignancy than tumors in the breast that appeared benign clinically. They report an incidence of 7.6% of cancer in 194 patients who had clinically benign nodular goiter as contrasted to an incidence of 6.7% of cancer in 75 patients who had clinically benign breast lesions. They conclude all nodular goiters should be removed because of the high incidence of unsuspected cancer.

Helwig [18] says that the finding of atypical glands with nuclear abnormalities and even the invasion of blood vessels is no criterion of clinical malignancy in a gland in which the capsule is intact and not invaded by tumors. Since vein invasion and cellular atypia are the criteria

for a diagnosis of microscopic malignancy, they may be purely histological findings. This type of cancer is often clinically benign. Graham [19] believes that blood invasion is the most infallible evidence of cancer in an adenoma. Warren [20] states that if venous invasion is the only evidence of malignancy, only 6.3% of thyroid nodules will prove to be malignant.

SURGERY OF THYROID CANCER

The extent of necessary neck dissection associated with cancer of the thyroid is controversial. It is agreed that, if the capsule of the adenoma is not involved, complete lobectomy of the involved side with removal of the isthmus and subtotal lobectomy on the opposite side is sufficient. When these desirable conditions do not exist or when the tumor is grade 2 or more, radical neck dissection should be done.

Crile [21] thinks that, since the majority of these tumors are of low malignancy and spread only to the cervical lymph nodes, it is not necessary to remove the sternomastoid muscle or the ribbon muscles. Adequate removal of all gland-bearing tissue lateral to the thyroid in the tracheoesophageal groove and in the supramediastinal region is sufficient. Upper neck dissection can be deferred to a later date and then done only if it becomes necessary. This may be done without impairing the risk of cure. Black [22] concurs by stating that upper neck dissection is not necessary in cases of cancer of the lateral aberrant thyroid. Lahey,[15] Cole,[13] and others advocate more radical surgery to the extent of excision of the jugular vein and the muscular structures. Frazell and Foote [23] in 139 cases of papillary adenocarcinoma found that 80 patients, or 58%, showed metastatic nodes at the time of admission. King and Pemberton [24] found metastasis to the sternomastoid muscle in 50%, to the posterior triangle in 27%, and to the submaxillary triangle in 19% of their cases.

I have not removed the muscles when they were not involved by carcinoma, but when neck dissection was necessary I have usually removed the internal jugular vein. This not only blocks venous drainage but it affords a better approach to the glandular tissue behind the carotid sheath. Postoperative irradiation is indicated when glandular nodes or other evidence of extension is present. I doubt very much its effectiveness as a curative agent. The prognosis as reported by Judd [25] was an 89.5% five year rate of cure of papillary adenocarcinoma. The five year survival rate of patients who had adenocarcinoma in adenoma was 78.3% and for patients with diffuse adenocarcinoma it was 10.7%. The squamous cell type of carcinoma and sarcoma of the thyroid gland are usually fatal within a one year period.

LATERAL ABERRANT THYROID

The lateral aberrant thyroid continues to be controversial from the point of view of existence and relation to malignancy. A failure of the lateral components of thyroid tissue to fuse with the medial component to form the complete gland can result in aberrant thyroid tissue. Pemberton [26] thinks they are not misplaced thyroid tissue but malignant cells from the thyroid gland. Lahey,[27] in 1941 to 1946, expressed the reverse view that either the original tumor was in the aberrant bodies and metastasized to the thyroid gland or another aberrant nodule was present in the thyroid lobe. Primary cancer of aberrant thyroid tissue is extremely rare. The primary malignancy is usually in the thyroid gland.

MULTIPLE NODULAR GOITER (ADENOMATOUS)

Multiple nodular goiter is a degenerative process with areas of involution and attempted regeneration. In my experience the incidence of cancer has not exceeded 2%. Beahrs, Pemberton, and Black [28] reported an incidence of 7.5% in 3,247 operative specimens of adenomatous goiter and an incidence of 4.8% of carcinoma in nodular goiter. When present, I believe carcinoma is related to a congenital or hidden solitary adenoma.

Fully one-half of all multiple nodular goiters will eventually cause clinical evidence of hyperthyroidism. Clinical observations indicate that eventually cardiac manifestations of irregularity, fibrillation, and decompensation will appear, especially in those with a limited cardiac capacity. This relationship of chronic hyperthyroidism to cardiac irregularity and decompensation has been emphasized by Hertzler,[29] Lahey,[30] Davison,[31] Ginsberg,[32] and others. It has been a common observation with us. It is our opinion that it is the degenerative nodular adenomatous goiter of the subclinical type that is the true cardiotoxic goiter. Davison [31] states that all goiters tend to be fatal, either by carcinoma, by thyrotoxicosis, or by heart failure.

Cosmetic and mechanical factors are conditions that require removal of degenerative nodular goiter. Many of the latter are overlooked. The trachea may be narrowed and constricted or a nodular mass may protrude through the thoracic aperture into the mediastinum without being clinically apparent. This constriction or pressure may result in an increased respiratory rate, moderate tachycardia, and often respiratory embarrassment as a result of postural changes, the cause of which may not be suspected. The potentialities of nodular goiter, solitary or multiple, are not adequately appreciated by the practicing physician and need to be repeatedly emphasized.

SURGICAL TECHNIQUE

Visualization of the recurrent laryngeal nerve in thyroidectomy is controversial. I believe it is essential and have exposed the nerve routinely in over 1,000 cases. I have reduced nerve injury to less than 1%. I know this, because I have routinely inspected the vocal cords before and after operation and have recorded these observations. I know radical surgery can be done more safely if the nerve is exposed. Resection of the gland within the so-called true capsule is not complete assurance of nerve protection. Many abnormal relationships exist. The nerve is not usually difficult to expose. It has a substantial texture, and with a gentle approach it will not be injured. It is not enough to expose it low in the neck, but it should be visualized to the point of entrance into the larynx, where it usually divides just before penetrating the larynx. It is at this point that it is usually injured. I believe that exposure of the nerve in surgery of the thyroid is as essential as exposure of the ducts in surgery of the gallbladder. If it is seen it will not be injured, and if it is exposed gently, it will not be damaged.

Although the cords may move normally after operation, the voice may be affected. The superior laryngeal nerve supplies the mucous membrane of the larynx and the cricothyroid muscle. Injury to this nerve produces atrophy of the mucous membrane of the larynx and muscle paralysis. A dry larynx and an altered voice develop, which are disabilities of serious import to a singer or public speaker. The superior poles of the thyroid, the isthmus, the pyramidal lobe (if present), and deep projecting nodules of the lower pole must be included in an adequate thyroidectomy. Failure in these details may maintain a persistence of hyperthyroidism or result in a recurrence or a subsequent undesirable cosmetic appearance. The need for tracheotomy following thyroidectomy is not necessarily related to nerve injury. Laryngeal edema may greatly embarrass respiration and develop to a degree that necessitates great physical effort to breathe. Tracheotomy under such a circumstance should not be delayed. Failure to respond promptly may result in a needless fatality. It is a lifesaving procedure in this situation, and it is strongly recommended that the operation be performed without delay.

SUMMARY

Three controversial approaches that pertain to the treatment of thyroid disease are the treatment of hyperthyroidism, the incidence and management of cancer in nodular goiter, and some technical phases of thyroid surgery. The merits of surgery of exophthalmic goiter versus radioactive iodine appear to be about comparable to each other. Radioactive iodine presents none of the potentials for tragedy that are occasionally encountered in surgery of the thyroid. Surgery, however, largely removes the potential of future cancer while radioactive iodine does not. To date, no cancer has developed because of use of this isotope. Radioactive iodine has not been effective in the treatment of cancer of the thyroid. The uptake of iodine is very poor, and it is chiefly confined to the uninvolved portion of the gland. It is more effective in metastatic cancer of the thyroid after total thyroidectomy, and its usefulness is further augmented if the isotope is preceded by administration of a thiouracil compound after total ablation of the primary lesion.

The incidence of nodular goiter and its relation to malignancy seem to vary geographically, but the incidence is so frequent that the surgical removal of all nodular thyroid masses is advised. Technical problems relative to the extent of surgery to be performed for cancer of the thyroid are likewise controversial. In general this cancer should be approached as cancer elsewhere, and the gland-bearing tissue should be removed. The prognosis often is favorable, especially if the lesion is of a low grade and no extension has occurred. Aberrant thyroid tissue may be of embryologic origin, but such cases are rare. I believe the malignancy usually is primary in the thyroid gland.

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ESOPHAGEAL VARICES AND VASCULAR SPIDERS (NEVI ARANEOSI) IN CIRRHOSIS OF THE LIVER

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The vascular spider or spider angioma (nevus araneosus) has been recognized as an important clinical finding in the diagnosis of cirrhosis of the liver. Though it may be found during pregnancy, in viral hepatitis, and occasionally in a normal person, the diagnosis of cirrhosis must be considered in most cases in which spiders appear and especially in those in which they are multiple. Dr. William Bean deserves a great deal of credit for publicizing this entity in a series of papers [1] and for describing its historical and clinical development. The mechanism of its appearance in chronic liver disease, however, is not at all clear. Our interest in the vascular spider has been intensified by certain observations made during a study of esophageal varices.

Bean [1f] has characterized the vascular spider as consisting of a body or central point that may be elevated when large. Branching legs or radicles radiate and spread out parallel to the skin just below the surface. The bright red color is due to the arterial blood, and the temperature of the region encompassed by the spider may be 1 to 3 degrees centigrade higher than the uninvolved adjacent skin. Filling is from the center outward; this may be demonstrated by blanching the lesion by pressing on the center and then releasing the pressure. Associated skin changes include the paper money skin in which a number of easily visible small vessels are scattered about like the silk threads in paper money. Bean speculates that these lesions are found not only on the skin and mucous membranes but also along the mucosal lining of the alimentary tract.

METHODS AND RESULTS

One hundred and fifty patients with cirrhosis diagnosed by microscopic examination of specimens of the liver were routinely given an esophagoscopic examination to determine the presence of esophageal varices. The

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Eder-Hufford esophagoscope with flexible obturator was used. This instrument is fitted with a telescope giving four-diameter magnification. Each patient was thoroughly studied clinically, and a particular search was made for vascular spiders.

Esophageal varices were diagnosed in 95 cases (see table). In this study, spiders were found in 62.1% of the 95 patients with varices and in 29.1% of the 55 patients without varices. It is found that spiders are found more than twice as often when varices are present. There seemed to be no significant difference in the number of patients with hepatomegaly in the two groups.

COMMENT

We do not know of a similar study in which the objective features of cirrhosis have been compared in groups of patients with and without esophageal varices. It is interesting to note that Bean in a monograph on spiders [1e] compared the clinical data in cases of cirrhosis according to the presence or absence of spiders. The only notable difference in his two groups was the finding of collateral veins over the abdomen in 56% of the 74 patients with spiders and in 26% in the 27 patients without spiders. Unfortunately, our data are not complete in respect to collateral veins over the abdomen. Bean commented that this sharp difference "aroused the suspicion that the forces giving rise to vascular spiders may also favor the hypertrophy of collateral vessels when obstruction exists, although there is no direct evidence bearing on this point." Since the presence of collateral veins over the abdomen and the presence of esophageal varices are clinically taken to indicate the presence of portal hypertension, the finding of collateral veins with relation to spiders is of interest in the possible relationship of spiders to portal hypertension. Factors other than portal hypertension contribute to the development of hepatomegaly, splenomegaly, and ascites.

It is also of interest that the presence of esophageal varices shown by esophagoscopy in 95 of 150 patients with cirrhosis (63.3%) is comparable to the incidence of spiders in cirrhosis in various series in which there was a specific search for them. Bean [1c] found them in 74 patients out of 101 with cirrhosis, or 73.2%. Patek, Post, and Victor [2] found spiders in 76% of 63 patients, while Cicovacki [3] found spiders in 56% of 46 patients with cirrhosis. In 57 patients with cirrhosis, Varela Fuentes and Gutierrez Blanco [4] found spiders in 34 cases, or 59.6% of their patients. These authors also noted the greater frequency of spiders in the presence of gastrointestinal hemorrhage; 11 of 14 patients with hemorrhage had spiders while only 23 of 43 patients without gastrointestinal hemorrhage had them. Kinsell [5] found spiders in all of the 44 patients with cirrhosis on whom he reported recently. In 114 cases of cirrhosis diagnosed by needle biopsy, Brick [6] noted that 49, or 42.9%, were associated with spiders. It would thus appear that the incidence of spiders and esophageal varices in cirrhosis is roughly the same. The type of cirrhosis, whether alcoholic or nonalcoholic, does not apparently significantly alter the incidence of the presence of spiders.

The mechanism of the appearance of spiders in cirrhosis has aroused much interest, but the definitive explanation has eluded all workers. Although he points out some of the obvious weaknesses in the hypothesis, Bean [7] proposes that spiders may result from abnormal metabolism of estrogen and related 17-ketosteroid hormones. Supporting this concept is the appearance during pregnancy of spiders that usually disappear shortly after delivery. Bean and his associates [1e] have thoroughly described these changes in pregnancy, and the only difference between these spiders and those found in cirrhosis is the greater number usually found in cirrhosis. The occasional finding in cirrhosis of endocrine disturbances such as gynecomastia, testicular atrophy, and loss of sex-linked hair (axillary, pubic, facial, and chest) also seems to favor a hormonal theory, but Kinsell and associates [5] do not believe, on the basis of extensive study, that these findings are specific in chronic liver disease or that they are necessarily related to it. Many workers agree that there is a decrease in excretion of endogenous 17-ketosteroids [8] but Kinsell [5] indicates that this diminution is no greater than in other debilitated persons who show no evidence of liver damage. Dohan and associates [8d] specifically mentioned that there was no correlation between the urinary excretion of total estrogens and the presence of spiders. However, the excretion of unconjugated estriol was increased in patients with spiders.

Bean [1a] also noted development of spiders in two of three alcoholics to whom potent estrogenic substances had been given. Both of these patients had spiders prior to medication. Kinsell [5] could not reproduce this finding when estrogen-testosterone mixtures were given to patients with cirrhosis. In some of these patients receiving testosterone alone there was a rapid disappearance of the spiders. It was the opinion of Kinsell [5] that hormonal influences play no primary role in producing spiders, although they may exert some stimulating or inhibiting influences. Aside from circumstantial evidence, there appears to be little basis for a hormonal explanation of the production of spiders.

Esophagoscopic and Clinical Findings in 150 Cases of Cirrhosis

	95 Patients With Varices	55 Patients Without Varices
Hepatomegaly	70 (71.5%)	49 (89.0%)
Ascites	30 (31.5%)	12 (21.8%)
Vascular spiders	59 (62.1%)	16 (29.1%)
Splenomegaly	33 (34.7%)	11 (20.0%)

2. Patek, A. J., Jr.; Post, J., and Victor, J. C.: The Vascular "Spider" Associated with Cirrhosis of the Liver, Am. J. M. Sc. **200**: 341-347 (Sept.) 1940.

3. Cicovacki, D.: Star-Shaped Cutaneous Telangiectasis in Hepatic Cirrhosis and Its Diagnostic Significance, Wien. klin. Wchnschr. **53**: 478-483 (June) 1940.

4. Varela Fuentes, B., and Gutierrez Blanco, H.: Stellar Angioma in Liver Cirrhosis, Rev. españ. enferm. ap. digest. **10**: 573-580 (Nov.-Dec.) 1951.

5. Kinsell, L. W.; Margen, S.; McCallie, D. P., and Michaels, G. D.: Endocrine Aspects of Acute and Chronic Liver Disease, with Special Reference to the Metabolism of Endogenous and Exogenous Androgens, Stanford M. Bull. **11**: 46-57 (Feb.) 1953.

6. Brick, I. B.: Unpublished data.

7. Footnotes 1*a* to 1*e*.

8. (*a*) Eisenberg, H. L.; Kirshen, M. M.; Atlas, D. H., and Gaberman, P.: 17-Ketosteroid Excretion in Liver Disease, Gastroenterology **18**: 36-42 (May) 1951. (*b*) Williams, T. L.; Cantarow, A.; Paschkis, K. E., and Havens, W. P., Jr.: Urinary 17-Ketosteroids in Chronic Liver Disease, Endocrinology **48**: 651-657 (June) 1951. (*c*) Rupp, J.; Cantarow, A.; Rakoff, A. E., and Paschkis, K. E.: Hormone Excretion in Liver Disease and in Gynecomastia, J. Clin. Endocrinol. **11**: 688-699 (July) 1951. (*d*) Dohan, F. C.; Richardson, E. M.; Bluemle, L. W., Jr., and György, P.: Hormone Excretion in Liver Disease, J. Clin. Invest. **31**: 481-498 (May) 1952.

Another curious aspect not explained by a humoral mechanism is the peculiar distribution of spiders. They are found usually on the face, neck, chest, and arms. Only rarely can they be found below the level of the diaphragm. In 41 patients with cirrhosis Bean [1c] found 793 spiders, only 8 of which were below the level of the umbilicus. Only 3 of 193 spiders in 20 pregnant women were so located. This has been a common experience, and we have only seen spiders below the diaphragm in about 6 of several hundred patients with cirrhosis. While we feel that portal hypertension may be a contributory factor in the development of spiders, we do not believe that it explains fully the localization of them. Furthermore, in more than 20 patients who have had successful portacaval shunts with diminution or disappearance of the esophageal varices there has been no notable effect on the presence of spiders. Recently, a patient with severe cirrhosis, ascites, and many spiders underwent splenectomy for splenomegaly associated with intolerable pain and hypersplenia. In the month after splenectomy the ascites and many of the spiders, which had been noted for over seven years, disappeared. However, Bean [1c] has indicated that spiders may appear or disappear, apparently spontaneously, almost overnight. While one lesion fades, a new one may appear or another one may become larger.

We have not seen spiders in the mucosa of the esophagus even when varices have been present. Occasionally we have seen small vessels scattered in random fashion, much like the paper money skin that Bean [1f] described. This sign has been noted in patients with and without varices but only in patients with chronic liver disease. From the clinical point of view, the presence of spiders suggests to us the presence not only of cirrhosis but also of varices. We feel that all patients with cirrhosis should be given an esophagoscopic examination in view of the marked superiority of this method over current x-ray methods [9] for detecting the presence of varices. When spiders are present the need for esophagoscopy is urgent in view of the high percentage of patients who have cirrhosis and spiders and who also have esophageal varices. The knowledge of the presence of varices and of their size and extent may well change the method of management being considered.

SUMMARY

In 150 cases of cirrhosis, vascular spiders (nevi araneosi) were found more frequently when esophageal varices were present than when varices were absent. The mode of production of vascular spiders in cirrhosis is not known. Portal hypertension does not explain the presence of spiders, but it may be a contributory factor. The finding of spiders in a patient should suggest not only cirrhosis but also esophageal varices and should make mandatory esophagoscopy to ascertain the presence or absence of varices for complete management of the disease.

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9. Brick, I. B., and Palmer, E. D.: Comparison of Esophagoscopic and X-Ray Diagnosis of Esophageal Varices in Cirrhosis of the Liver, Am. J. Roentgenol., to be published.

PERIPHERAL ARTERIAL EMBOLISM AFTER MYOCARDIAL INFARCTION

OCCURRENCE IN UNSUSPECTED CASES AND AMBULATORY PATIENTS

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Primarily because of the established psychological and physiological abnormalities that follow prolonged bed rest, early ambulation after acute myocardial infarction has been recommended by several authors.[1] It has been the clinical impression of one of us (G. de T.) that peripheral arterial emboli occur more frequently in the presence of early ambulation, especially when the coronary occlusion is unsuspected. This paper reports a small group of cases in which massive arterial emboli occurred while the patients were ambulatory.

That thromboembolic phenomena occur commonly after acute myocardial infarction has been well established. Hellerstein and Martin [2] found this complication to be the major cause of death in 14% and a contributing cause of death in another 15% of 160 post-mortem examinations after myocardial infarction. In a review of the literature up to 1947, they found the lung to be the organ most frequently involved (23.5%) and the extremities the least frequently involved (5.5%). The anticoagulant study sponsored by the American Heart Association emphasized the prevalence of this complication after myocardial infarction.[3] A review of the recent literature is contained in the monograph by Marple and Wright.[4]

Since the diagnosis of pulmonary arterial embolism is frequently difficult and since the source of such emboli may be either the right heart or the venous system, pulmonary emboli are not included in this paper unless found

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1. Dock, W.: The Evil Sequelae of Complete Bed Rest, J. A. M. A. **125**: 1083-1085 (Aug. 19) 1944. Dock, W.: Therapeutic Use and Hazards of Bed Rest, Connecticut M. J. **11**: 606-608, 1947. Harrison, T. R.: Abuse of Bed Rest as a Therapeutic Measure for Patients with Cardiovascular Disease, J. A. M. A. **125**: 1075-1077 (Aug. 19) 1944. Black, J. R. Bed Rest in Heart Disease, New Orleans M. & S. J. **99**: 346-358, 1947. Wolferth, C. C.: Newer Developments in Treatment of Heart Disease, Delaware M. J. **17**: 1-6, 1945. Irving, C. W., Jr., and Burgess, A. M., Jr.: The Abuse of Bed Rest in the Treatment of Myocardial Infarction, New England J. Med. **243**: 486-489, 1950.

2. Hellerstein, H. K., and Martin, J. W.: Incidence of Thromboembolic Lesions Accompanying Myocardial Infarction, Am. Heart J. **33**: 443-452, 1947.

3. Wright, I. S.; Marple, C. D., and Beck, D. F.: Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction, Am. Heart J. **36**: 801-815, 1948.

4. Marple, C. D., and Wright, I. S.: Thromboembolic Conditions and Their Treatment with Anticoagulants, Springfield, Ill., Charles C Thomas, Publisher, 1950.

concomitantly at post-mortem examination with systemic arterial emboli. Excluding septal defects with paradoxical emboli, peripheral systemic arterial emboli may originate in the left heart or the arterial tree. Here one must differentiate embolism, thrombosis, and arteriospasm. Such differentiation is more feasible in the extremities. For this reason, embolus to the lower extremity was a prerequisite in case selection.

TABLE 1.—*Source of Arterial Emboli of the Extremities (Twenty-Seven Patients)*

Source	No. of Patients	Average Age (Yr.)
Rheumatic heart disease	6	45
Myocardial infarction	7	53
Bacterial endocarditis	3	39
Arteriosclerotic heart disease	2	68
Clot due to aneurysm	2	64
Thrombosed plaque	3	74
Unknown	4	50

While a definite number of systemic arterial emboli, 31.5%,[5] follow myocardial infarction, the majority are due to rheumatic heart disease with auricular fibrillation.[6] Other patients whom we have seen and upon whom we have operated are not included in this series (table 1). This study, therefore, includes only recognized peripheral systemic arterial embolism of the lower extremities after acute myocardial infarction in patients with no evidence of rheumatic fever. Charts conforming with these criteria were selected from 315 cases of embolic phenomena occurring at St. Luke's Hospital between 1938 and 1950. Such rigid selection precludes a large series of cases. The time of onset of the emboli was correlated with the ambulatory status of the patient and may be found in table 2.

REPORT OF CASES

CASE 1.—A 58-year-old woman had a myocardial infarction on May 14, 1953, and was hospitalized in an outlying town. The patient was allowed to return home on June 6 although her activity was limited; she reentered that hospital on June 10 with abdominal pain, distention, dyspnea, and cough. On June 12 she was transferred to this hospital with a diagnosis of embolus. When she was admitted, it was obvious the patient had an embolus of the aortic bifurcation, that her heart had not compensated, and that she was an extremely poor surgical risk. It was felt, however, that embolectomy offered the only chance, and consequently abdominal exploration was performed. Because of massive adhesions from previous operations, mobilization of the aorta could not be attempted without much loss of time. Embolectomy was therefore performed by catheter suction through both femoral arteries while the abdomen was being closed. Both femoral arteries pulsated well at the completion of the operation. The patient died the next morning, and the post-mortem examination revealed ". . . recent and old infarction of the myocardium of the left ventricle, mural thrombus of the left ventricle, obturator thrombosis of the right common iliac, and right external iliac arteries, and recent cortical infarct of the left kidney." The left iliofemoral segment and the aorta were free.

CASE 2.—A man, age 50, was seen as an outpatient on March 14, 1950, for an acute episode of cough, wheezing, and dyspnea. Electrocardiograph findings and a chest roentgenogram at that time were noncontributory, and the patient was advised to enter the hospital for a complete examination. He, however, remained ambulatory until March 28, at which time he was admitted through the emergency room with symptoms of three days' duration, suggestive of a saddle embolus. Gangrene of the right leg required amputation above the knee on April 13. He was allowed up in a wheel chair on April 16 and was up each day until May 27, at which time he experienced severe chest pain and an absence of the radial pulse. A diagnosis of acute myocardial infarction was made at this time. The patient died on June 8, 1950. Electrocardiograms taken throughout the hospital course gave no definite information, but a post-mortem examination revealed recent and old infarcts of the myocardium with mural thrombi, recent and old infarcts of the spleen and kidneys, and obturator thrombosis of the aorta, common iliac vessels, and axillary artery.

CASE 3.—A 59-year-old man had a cholecystectomy, presumably for acute cholecystitis, at another hospital on July 7, 1948; the removed gallbladder, however, was normal. He was allowed up the next day. A femoral embolus developed on July 10, and the patient was transferred to this hospital where an embolectomy was performed. The leg slowly became gangrenous below the knee, and evisceration from the gallbladder incision occurred on July 21. The incision was rapidly closed, and a guillotine amputation was performed through the lower thigh. The patient died the night of July 21. Electrocardiograms taken on July 12 and July 19 showed evidence of acute myocardial damage. Fibrillation was not present. Post-mortem examination could not be performed.

CASE 4.—A man, also 59 years old, had a proved coronary occlusion in November, 1944, with subsequent intermittent attacks of substernal pain. A cold and laryngitis developed on Jan. 3, 1948, and on Jan. 6 he experienced severe substernal pain that radiated into his neck. While an electrocardiogram was being taken at the physician's office, the patient experienced a similar severe attack. He was admitted to the hospital that day and on Jan. 15 an embolus developed in the right common femoral artery. This was removed the same day. The condition of the patient became worse, and he died on Jan. 21, 1948, from uremia and congestive heart failure. Electrocardiograms taken on successive days between Jan. 5 and 9, and on Jan. 12, showed a definite posterior myocardial infarction with evolution. Fibrillation was not present, and post-mortem examination was not performed.

CASE 5.—A 39-year-old man had a "dizzy spell" on April 20, 1944, and spent a day and night in bed; since that time he had in the morning slight hemoptysis and a persistent tendency to be dizzy. He also had palpitation since that time when he exercised. On May 14, while the patient was playing with his daughter, severe pain and paralysis developed in his left leg, and an embolus was extracted that night from the left common femoral artery. An electrocardiogram taken the next day, May 15, showed "a curve that is seen in posterior healing infarction which did not suggest a recent process." On May 27 the lower left leg was amputated, and the patient had an uneventful convalescence. Fibrillation was not present.

TABLE 2.—*Ambulatory Status of Eight Patients with Myocardial Infarction and Peripheral Lower Extremity Arterial Embolization*

Case	Date of Myocardial Infarction	Days Between Heart Attack and Embolus	Duration of Bed Rest (in Days)
1	5-14-53	27	None
2	3-14-50	14	None
	5-27-50	12	12
3	7- 4-48	6	None *
4	1- 6-48	9	9
5	4-20-44	24	None
6	1-11-44	5	5
7	6- 6-42	6	None
	7- 6-42	30	In bed but extremely active because of severe confusional psychosis
	7-16-42	10	
8	11-21-40	20	20

* This patient had a cholecystectomy on 7-7-48.

5. Haimovici, H.: Peripheral Arterial Embolism, Angiology **1**: 20-45, 1950.

6. Weiss, S., and Davis, D.: Rheumatic Heart Disease: III. Embolic Manifestations, Am. Heart J. **9**: 45-52, 1933.

CASE 6.—A 73-year-old woman had a severe pain in her chest and began vomiting while she was shopping on Jan. 11, 1944. She remained ambulatory, but pain continued until the next morning when she was admitted to the hospital through the emergency room. An electrocardiogram revealed a picture "consistent with coronary artery disease and could be the result of multiple myocardial infarction." A femoral embolus was evident on Jan. 16, and a supracondylar amputation was performed on Jan. 25. A cerebral embolus was diagnosed on Jan. 29, from which the patient recovered. She was released from the hospital on Feb. 29, 1944.

CASE 7.—A man 55 years old, who had diabetes, was hospitalized elsewhere on June 6, 1942 for a "mild pneumonia." Fibrillation was taking place at that time, and the patient was digitalized. On June 12 an embolus developed in his right leg, and he was transferred to this hospital. While an electrocardiogram demonstrated only "evidence of myocardial pathology," a clinical diagnosis of acute myocardial infarction was made. A supracondylar amputation was performed on June 19. Postoperatively the patient had a severe confusional psychosis and continually thrashed about in bed and tore off his dressings. An embolus developed in the brain on July 6, and another developed in his right arm on July 16. Death occurred on July 17, 1942; a post-mortem examination was not performed.

CASE 8.—This 72-year-old woman had had hypertensive cardiovascular disease since 1919. Two electrocardiograms taken on June 14, 1940, and July 13, 1940, showed progressive changes. She entered the hospital on Aug. 3 with a long history of angina and a history suggesting previous coronary attacks. She was discharged on Aug. 24 and got along fairly well until Nov. 21 when she experienced severe pain in the left axilla while she was climbing stairs. She received partial bed rest until her entrance into the hospital on Dec. 3. On Dec. 11 an embolus developed in the left leg. On Dec. 13 and again on Dec. 17 cerebral emboli were diagnosed. The patient died on Dec. 19, 1940, and a post mortem revealed "old obturating thrombus of the anterior descending branch of the left coronary artery; extensive old and recent infarction of the myocardium of the left ventricle of the heart; adherent mural thrombus of the left ventricle of the heart." Fibrillation was not present.

COMMENT

Since early ambulation after acute myocardial infarction is not practiced by the internists in our institution, all these instances of emboli occurring during ambulation are from unrecognized myocardial infarctions or found in patients referred from other institutions. Landman, Anholt, and Angrist [7] found that 11% of 255 acute myocardial infarctions were of the so-called silent type. Indeed, peripheral embolization may be the presenting symptom of myocardial infarctions as in cases 1 and 3. Altschule [8] points out that emboli may originate in remote myocardial infarction. In case 5 it would seem that myocardial infarction occurred one month before the embolic phenomena occurred. It is well known that the differential diagnosis of myocardial infarction is at times extremely difficult. Errors in diagnosis appear to have been present in cases 3 and 7. In only one instance was the embolus extracted within the optimum time interval (case 4), and this patient died from other causes before the result could be ascertained. The other embolectomies were performed in order to lower the level of amputation and long exceeded the required 6 to 10 hours for successful embolectomy. Our routine of treatment for peripheral embolism, in effect at this hospital for many years, includes the following steps: (1) immediate admission to the hospital; (2) intravenous or intra-arterial administration of papaverine and heparin; (3) paravertebral sympathetic block; (4) embolectomy under spinal anesthesia if conservative methods fail and if limb is still viable; (5) repeated sympathetic block or sympathectomy if viability is doubtful; (6) application of ice packs to extremity when extremity is lost; and (7) amputation not under refrigeration.

It is evident that such a small series of cases is not statistically significant, and it is not the purpose of this paper to recommend prolonged bed rest after acute myocardial infarction. These, however, are the only clear-cut cases of peripheral arterial embolism in patients with myocardial infarction. Purposely we did not include patients with venous thrombosis and pulmonary emboli since the incidence varies with the index of suspicion and the diagnosis is often suspected but not proved. One notes the high incidence of emboli that occurred with activity in unrecognized myocardial infarction. This is particularly impressive when one considers the rigid selection of cases and the fact that all recognized cases of myocardial infarction are treated with six or more weeks of bed rest at our institution. The incidence of thromboembolic complications after coronary occlusion on the third medical service of the late Dr. N. C. Gilbert was 5.9%,[9] actually less than the incidence of thromboembolic phenomena in the series of patients treated with anticoagulants by the Cooperative Committee of the American Heart Association.[8] It would be interesting if those who advocate early ambulation would review their cases in regard to thromboembolic complications. The belief that sitting motionless in a chair is worse than exercising the legs in bed is based on common experience.

The use of anticoagulants is conspicuously absent in this series; it was not employed by the men caring for the group. As surgeons who see a respectable number of venous thromboses and pulmonary emboli after myocardial infarction, we are inclined to believe in the advisability of using anticoagulants after severe myocardial infarctions.[10] Three points must be emphasized in this connection, however. First, the protection from emboli to the periphery coming from the heart chambers can never be as complete as if a venous thrombus is prevented from breaking loose in the pulmonary arterial system, for hydrodynamic reasons. Second, no adequately controlled, statistically valid study has come to our attention that would indicate "that routine anticoagulant therapy in acute myocardial infarction decreases the mortality [and morbidity rate] in all classes of patients from the mildly ill to the seriously ill." [11] Third, our entire concept of anticoagulant therapy for acute thromboembolic episodes needs a drastic revision.[12] In Schnur's 2,000 daily determinations, 66% of the time the prothrombin levels were outside of the "effective" range and once a week they were in the hemorrhagic zone; the precise range has never been clearly determined. Our experience with short, intensive heparin therapy in the hospital followed by a

7. Landman, M. E.; Anholt, H. S., and Angrist, A.: Asymptomatic Myocardial Infarction, Arch. Int. Med. **83**: 665-676 (June) 1949.

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10. Russek, H. I., and others: Indications for Bishydroxycoumarin (Dicumarol) in Acute Myocardial Infarction, Circulation **5**: 707-711, 1952. Littman, D.: The Prevention of Thromboembolism in Acute Coronary-Artery Disease, New England J. Med. **247**: 205-208, 1952.

11. Schnur, S.: Mortality and Other Studies Questioning the Evidence for and the Value of Routine Anticoagulant Therapy in Acute Myocardial Infarction, Circulation **7**: 855-868, 1953.

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few weeks of ambulatory self-administered subcutaneous heparin therapy has recently been reported.[12]

SUMMARY

While anticoagulant prophylaxis has received a great deal of attention in the treatment of myocardial infarction, no attention has been drawn to the possible factor of immediate or early ambulation in the production of embolic phenomena after myocardial infarction. The mortality was high among the eight patients discussed here who were not put to bed after a coronary occlusion or whose bed rest was short or not strictly enforced.

ADDENDUM

Since the preparation of this paper, the significant report of Schlichter, Hellerstein, and Katz [13] appeared, showing that 20% of all cases of myocardial infarctions seen at post mortem had ventricular aneurysms and that 51% of the aneurysms were associated with thromboembolism. Seventy per cent of the patients with aneurysms had inadequate bed rest at the time of infarction.

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13. Schlichter, J.; Hellerstein, H. K., and Katz, L. N.: Aneurysm of the Heart, Medicine **33**: 43-75, 1954.

EFFECT OF STORAGE AT ROOM TEMPERATURE ON INFECTIVITY OF ICTEROGENIC PLASMA

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Recent reports by Allen and his co-workers [1] have indicated a lowered incidence of homologous serum hepatitis resulting from the infusion of plasma stored at room temperature. Following the earliest of these reports,[1a] it was decided to investigate this means of inactivating the agent or agents of homologous serum hepatitis by inoculation studies in volunteers, using plasma that was known to be icterogenic. This was a part of a larger study dealing with the safety of blood and blood products with reference to homologous serum hepatitis.[2]

MATERIALS AND METHODS

The icterogenic plasma used in these studies was part of a single large pool prepared for the purpose of investigating methods of sterilizing blood and blood derivatives with respect to the agent of serum hepatitis. The preparation of the plasma pool and the general conduct of the volunteer studies have been described elsewhere.[2] It should be noted, however, that the total volume of the pool was 130 liters and that it was prepared by the addition of 980 ml. of presumably infected plasma or serum, obtained from a number of patients in the acute phase of serum hepatitis, to the plasma obtained from 408 blood donations. Thus, apart from any of the 408 donations that might have been of icterogenic blood, the infected material used was diluted 1:133. The infectivity of this plasma has been repeatedly demonstrated. The infective titer of the plasma was 1×10^{-4} ml. To date 55 volunteers have served as controls in this and other studies. The volume of the inoculum in each case was 1 ml. The take rate was 52.7%; in 40% of those inoculated hepatitis with jaundice developed and in 12.7% hepatitis without jaundice developed.

Storage at room temperature was conducted in a locked cabinet in one of the laboratory rooms at the National Institutes of Health. The room was air conditioned and thermostatically controlled. The cabinet was provided with a recording thermometer that indicated a temperature between 70 and 74 F during the entire period of storage.

Frozen samples of the plasma pool mentioned above, which had been kept at –20 C (–4 F), were thawed and stored in the cabinet for different periods of time (six months, three months, six weeks, and three weeks). At the end of the predetermined period of storage, the plasma was immediately frozen and thereafter maintained at –20 C until required for test purposes. At such times, the appropriate samples were transported under dry-ice refrigeration to the institution where the inoculation studies were to be conducted and were thawed at room temperature at the time of inoculation into the volunteers. The procedure adopted was to inoculate a first group with what was presumably the least infectious material—plasma stored at room temperature for six months—and to delay a decision as to further inoculations until the infectivity of this material had been determined. Four groups of volunteers were inoculated with plasma stored at room temperature.

Group 1.—Ten volunteers were each given 2 ml. of infected pool plasma that had been stored at room temperature for six months. All of these men were followed closely for a period of six months after inoculation, at

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The service rendered by the volunteers is gratefully acknowledged.

1. (*a*) Allen, J. G., and others: Homologous Serum Jaundice and Its Relation to Methods of Plasma Storage, J. A. M. A. **144**: 1069 (Nov. 25) 1950. (*b*) Allen, J. G.: Symposium on Use and Misuse of Blood Transfusion in Surgery: Pooled Plasma and Homologous Serum Jaundice, Maryland M. J. **1**: 540 (Nov.) 1952. (*c*) Allen, J. G.; Inouye, H. S., and Sykes, C.: Homologous Serum Jaundice and Pooled Plasma—Attenuating Effect of Room Temperature Storage on Its Virus Agent, Ann. Surg. **138**: 476 (Sept.) 1953. (*d*) Allen, J. G.; Enerson, D. M.; Barron, E. S. G., and Sykes, C.: Pooled Plasma with Little or No Risk of Homologous Serum Jaundice, J. A. M. A. **154**: 103 (Jan. 9) 1954.

2. Murray, R., and others: Carriers of Hepatitis Virus in the Blood and Viral Hepatitis in Whole Blood Recipients: 2. Confirmation of Carrier State by Transmission Experiments in Volunteers, J. A. M. A. **154**: 1072 (March 27) 1954.

which time they were dropped from close observation. As was the case with all volunteers participating in these studies, they were subsequently followed whenever they presented themselves with medical complaints. Fifteen days after being dropped from close observation, one of these volunteers complained of anorexia, nausea, and pruritus. He was admitted to the hospital and a diagnosis of hepatitis with jaundice was subsequently made. The incubation period was 194 days. The other nine volunteers in the group were once more placed under close observation, but none showed any abnormalities in the results of either the laboratory tests or clinical examinations during a total period of observation of eight months.

Groups 2 and 3.—These two groups originally consisted of 10 volunteers, 6 in one institution and 4 in another, who were inoculated approximately seven months after group 1. Each subject received 1 ml. of infected pool plasma that had been stored at room temperature for six months. Those in group 3 were inoculated 14 days after those in group 2. In view of the long incubation period of the one case of hepatitis among the subjects in group 1, those volunteers in groups 2 and 3 were kept under close observation for seven to eight months.

Data and Results of Inoculation of Volunteers with Icterogenic Plasma

Group	Period for Which Plasma (Inoculum) Was Stored	No. of Subjects	Vol. (Ml.) Injected	Cases of Hepatitis*	Incubation Periods (Days)
1	6 mo.	10	2	1	194
2	6 mo.	5†	1	0	...
3	6 mo.	4	1	0	...
4	3 mo.	5	1	3	82, 95, 117

* In all cases of hepatitis encountered in this series of studies, there was jaundice.

† Originally six subjects were included in this group, and all received the material shown. One of the subjects, however, was excluded from the study 38 days after inoculation.

None of the men showed any evidence of hepatitis during this time. One subject in group 2 was excluded from the study after 38 days after he had been inoculated because he received 10 ml. of immune serum globulin. He was, nevertheless, maintained under the same close observation as the others. Groups 2 and 3, therefore, consisted of nine subjects.

Group 4.—Five volunteers were each given 1 ml. of infected pool plasma that had been stored at room temperature for three months. In three of these, hepatitis with jaundice developed. Incubation periods were 82, 95, and 117 days. Inoculation and observation in groups 3 and 4 were concurrent and in the same institution. The results are summarized in the table.

CONTROLS

Previous experience with the plasma used had shown that it was icterogenic. Concurrently with group 1, and a number of other studies being conducted simultaneously, five volunteers were inoculated with 1 ml. of untreated infected pool plasma that had been maintained frozen from the time of pooling. In one person in this group hepatitis with jaundice developed; the incubation period was 84 days. In an additional subject, abnormalities developed in the results of hepatic function tests 74 days after inoculation that were suggestive of hepatitis without jaundice.

Thirteen days prior to the inoculation of volunteers in group 1, five volunteers had been inoculated with 1 ml. of infected pool plasma that had been diluted 1:10,000 in sterile isotonic sodium chloride solution. This was part of a separate study to determine the infective titer of the plasma pool. One case of hepatitis with jaundice occurred in this group. No controls as such were run parallel with groups 2, 3, and 4. However, the occurrence of cases of hepatitis among the subjects in group 4, the last group to be studied in this series, attests to the continued infectivity of the plasma used.

REPORT OF CASES

CASE 1.—The subject in group 1 in whom hepatitis developed was a 33-year-old white man in good health. He had undergone a cholecystectomy one year previously for acute cholecystitis. After consultation with the surgeon who performed the operation and on determining that no gallstones had been found and that no jaundice had been present, it was felt that the history did not contraindicate the man's participation as a volunteer. Reactions to the Kahn and Kolmer tests were negative. Liver function tests showed no abnormalities. After inoculation he was followed by weekly physical examinations and liver function tests for a period of 6 months (178 days). On the 194th day after inoculation, he noted that his urine was dark. Subsequently anorexia, nausea, and pruritus developed. The man was admitted to the hospital 199 days after inoculation.

Physical examination revealed an afebrile, well-developed, well-nourished man in no acute distress. The scleras showed questionable icterus. No organs or masses were palpable in the abdomen. No tenderness was present. Laboratory data at the time of admission to the hospital showed white blood cells, 6,050 per cubic millimeter, with polymorphonuclears, 62%, lymphocytes, 36%, and monocytes, 2%; hemoglobin, 15.8 gm. per 100 cc.; hematocrit, 44%; and corrected sedimentation rate, 5 mm. Other values were urine urobilinogen, 5.5 Ehrlich units (two hour specimen); urine bilirubin, 1+ (Harrison Spot test); one minute serum bilirubin, 1.26 mg. per 100 ml.; total serum bilirubin, 2.74 mg. per 100 ml.; thymol turbidity, 3 units; thymol flocculation, 0; zinc turbidity, 5 units; phenol turbidity, 13 units; cephalin-cholesterol flocculation, 24 hours ± and 48 hours ±; alkaline phosphatase, 5.8 King-Armstrong units; total protein, 5.3 gm. per 100 cc.; albumin, 3 gm. per 100 cc.; and globulin, 2.3 gm. per 100 cc.

On the second hospital day the liver became palpable 1 cm. below the right costal margin. The patient was kept at bed rest and given a high protein, high carbohydrate, restricted fat diet. He did well for the first week. The total serum bilirubin, which had risen to 2.74, fell to 1, and symptoms disappeared. Thereafter, there was an exacerbation of symptoms; the liver became larger; and serum and urine bilirubin levels rose, the total serum bilirubin reaching a peak of 8.12 mg. per 100 ml. After this, recovery was uneventful, and the man was discharged on the 47th hospital day.

Although the findings reported strongly support a diagnosis of homologous serum hepatitis, the long but not unique incubation period and the fact that only one case occurred among the 10 subjects who were inoculated strongly suggested the need for further study. Accordingly serum from the patient, taken on the day he was admitted to the hospital and while the disease was in the acute phase, was inoculated into three volunteers in 1 ml. amounts. In one of these subjects hepatitis without jaundice developed; the incubation period was 75 days.

CASE 2.—This 21-year-old subject was admitted to the hospital primarily because of a slight but definite elevation in the one minute and total serum bilirubin levels. His only complaint was pruritus about the nose and neck, upper abdominal ache, dark urine, and cigarette distaste, all of one day's duration. The medical history and family history were noncontributory. There was no history of narcotics use, and alcohol intake prior to incarceration was minimal.

Physical examination at the time of admission revealed a well-developed, well-nourished man in no acute distress. The scleras and mucous membranes were not icteric. No lymphadenopathy

was present. The abdomen was soft. No masses or organs were palpable. No tenderness was present. Laboratory data at this time showed white blood cells, 5,400 per cubic millimeter, with polymorphonuclears, 51%, lymphocytes, 42%, monocytes, 5%, and eosinophils, 2%; hemoglobin, 15 gm. per 100 cc.; corrected sedimentation rate, 8 mm.; and hematocrit, 48%. Other values were urine urobilinogen, 1.6 Ehrlich units (2 hour specimen); urine bilirubin, ± (Harrison Spot test); sulfobromophthalein (Bromsulphalein) test, 43% retention in 45 minutes; one minute serum bilirubin 0.6 mg. per 100 ml.; total serum bilirubin, 1.38 mg. per 100 ml.; thymol turbidity, 4 units; thymol flocculation, 0; zinc turbidity, 8 units; phenol turbidity, 6 units; and cephalin-cholesterol flocculation (previously negative), 2+ after 24 hours and 3+ after 48 hours.

The man's stay in the hospital was uneventful. Equivocal scleral icterus was noted on the second hospital day. On the fifth hospital day, the liver was palpated 1 cm. below the right costal margin. This finding was not present on subsequent days. On the ninth hospital day, the one minute and total serum bilirubin levels had returned to normal and a repeat sulfobromophthalein test showed 4% retention at the end of 45 minutes. The man was discharged on the 12th hospital day.

COMMENT

The fact that hepatitis developed in only one person out of the 19 who received plasma stored at room temperature for six months suggests that the infectivity of such material must be low. The long incubation period of 194 days further suggests that the agent had in some way become attenuated. However, as is apparent from the case report, the course of the illness in this subject was not mild and involved one recrudescence. The possibility that this might not be serum hepatitis was entertained because of these unusual features. All of the laboratory data, however, suggest a diagnosis of hepatitis, and the fact that inoculation of serum obtained during the acute phase into three volunteers resulted in one case of hepatitis, without jaundice and having an incubation period of 75 days, strongly supports this. The possibility remains, however, that this apparently unusual case might have been a sporadic case of hepatitis unrelated to the inoculum that the volunteer received. This would have been strengthened had no cases occurred with material stored for shorter periods of time. The occurrence of three cases of hepatitis among five volunteers indicates continued infectivity of plasma stored for three months and lends some support to the belief that the case that occurred in group 1 was a case of homologous serum hepatitis resulting from the administration of infected pool plasma that had been stored for a period of six months at room temperature.

In considering these results, attention should be given to (1) the dilution of the original icterogenic material when the 130 liter pool was prepared (1:133) and (2) the size of the individual inoculations. The volumes used were 1 to 2 ml., whereas, in the clinical administration of plasma, the volumes are of the order of 500 ml. Recent unpublished data obtained by our group in the study of the safety of other blood products lend particular emphasis to this point. It has been shown that materials that have appeared innocuous when administered in small doses (1 to 3 ml.) have produced hepatitis when given in the doses used clinically.

DELUSION OF PARASITOSIS

REPORT OF SUCCESSFUL CARE WITH ANTIPELLAGROUS TREATMENT

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In 1946, Wilson and Miller [1] reported six cases of the syndrome known as acarophobia that they had seen. Patients afflicted with it suffer from the delusion that they are parasitized by insects. Wilson and Miller suggested that the disease be called "delusion of parasitosis," because "acarophobia" implies only fear of acarids, whereas these patients describe their fictional parasites under many forms from insect to worm, often ascribing bizarre habits to them.

Wilson and Miller felt at that time that the delusion was always paranoid, and they classified it as a symptom of four types of mental disorder: (1) toxic psychosis; (2) paranoid type of dementia praecox; (3) involutional melancholia; and (4) paranoia and paranoid states in arteriosclerosis, syphilis, alcoholism, and senility.

In November, 1952, Wilson [2] reported 16 cases of the disorder that he had seen in the past seven years, as well as citing 18 others from his own locality that were reported to him during the same time. By that time, he had come to the conclusion that a delusion of parasitosis may be present in a patient who has only a psychoneurosis; i. e., one in contact with reality. He included in the same category such phobias as syphilophobia, which is a delusion of parasitosis by a different parasite. His belief is that such delusions are an indication of mental aberration beyond the scope of treatment by practitioners other than those trained in psychiatry.

Of the 34 patients he reported on, only one recovered, although 5 were treated by psychiatrists. The one recovery was in a woman with a spontaneous cure, following termination of housing of unwanted outsiders in her home. McFarland [3] saw nine cases in the previous five years; none of these patients were cured, although most were seen by psychiatrists.

CLINICAL PICTURE

The clinical picture in patients with this obsession is quite characteristic. Often they bring to the physician a container holding bits of debris or crusts from their skin lesions. These they believe firmly to be the parasites themselves or to contain them. Bedding and clothing are often washed and even boiled daily. Frequent bathing and application of various anti-insecticidal medicaments

1. Wilson, J. W., and Miller, H. E.: Delusion of Parasitosis (Acarophobia), Arch. Dermat. & Syph. **54**: 39 (July) 1946.
2. Wilson, J. W.: Delusion of Parasitosis (Acarophobia), A. M. A. Arch. Dermat. & Syph. **66**: 577 (Nov.) 1952.
3. McFarland, A. R.: Mechanical Trauma, A. M. A. Arch. Dermat. & Syph. **67**: 278 (March) 1953.

are likewise common. These result in a more or less generalized, dry, scaling, secondary irritation dermatitis.

Primary skin lesions may or may not be present. Often the patient has crusted over, small-to-medium-sized ulcerations produced by digging with a fingernail or an implement in order to relieve an intense burning or itching pain. These may be present any place on the body, although hairy regions are often the most pruritic. These so-called neurotic excoriations may be present in a patient who has no delusion of parasitosis, in which case they are found more frequently on the readily accessible areas, such as the face and extremities.

Persons living in a home with the patient may also become convinced that they are afflicted with parasites. These secondary cases usually clear up promptly after removal from contact with the patient.

In 1942, a maniacally pellagrous woman with neurotic excoriations was seen. These excoriations disappeared with treatment of her pellagra. Therefore, it was thought worth while to question as to dietary intake all patients afflicted with neurotic excoriations, whether they had a delusion of parasitosis or not. Furthermore, it seemed logical to give trial to a well-balanced diet in their care.

REPORT OF CASES

Case 1.—A 62-year-old woman was seen in the spring of 1942, 10 days after she had been seen by a psychiatrist. He had thought her to be suffering from senile dementia and recommended commitment to a state institution, as she was depressed and had paranoid delusions of persecution. However, the family had kept her at home and had her sit in the sun occasionally, hoping that would help her. Following this, the typical dusky swelling of pellagrous dermatitis appeared on her forehead and the backs of her hands and wrists.

On inquiry, it was learned that the woman, a Quaker, had been worried lest her two sons be drafted into the Army and had eaten only white bread, molasses, and tea for about three months. The woman had also refused to eat for the past week or so. This refusal to eat may have been the result of pain attendant upon eating owing to a pellagrous stomatitis rather than a negativistic symptom of her mania.

She had pulled out almost all the hair from the front part of her scalp. This loss was complete in a band, extending back from the hair line for about an inch and continuous almost from ear to ear, where a sparse tuft remained. This phenomenon is known as trichotillomania and may accompany neurotic excoriations.

During the interview with the son in the home, the mother sat in a corner, seemingly sunk so deep in depression that she paid no attention to what was being said. Suddenly, she raked her fingernail deeply along the left forearm, making a scratch several inches long, which bled profusely. She was asked if she itched, to which she replied, "Why, I believe I do." She had a dozen or more, small, round, dug-out, bloody-crusted lesions on her forearms and face. For three or four weeks, there had been many such long, bloody-crusted scratch marks and dug-out smaller lesions scattered over her body, although she had never complained of itching.

Without further examination, she was taken by her son to a nursing home in another city. When he left her there, he told her that he would come for her in a month if she ate well. This she promptly proceeded to do, receiving an antipellagrous diet and supplementary, multiple vitamin capsules by mouth. When she returned home at the end of one month, she had regained 15 (6.8 kg.) of the 30 lb. (13.2 kg.) lost during her illness, and her sensorium and skin were clear. New hair growth had started in the epilated area. When she was last heard from, over a year later, she had remained normal in every respect and was keeping house for four persons.

Case 2.—A 48-year-old woman was seen Dec. 8, 1950, complaining of parasitization with "black bugs" for the previous three or four months. Inquiry revealed that the patient had followed the lead of her daughter in taking *d*-amphetamine sulfate (Dexedrine) and limiting her dietary intake for slight obesity. She did this without medical supervision, and as a result had lost about 35 lb. (15.8 kg.) in weight during the preceding six or seven months and was markedly underweight. For several weeks before she was seen, she had been existing only on numerous cups of black coffee with an occasional piece of toast.

She said that every so often one of the "black bugs" would crawl out of her skin, only to dig into another spot, where it would cause an intolerable burning from its biting. When the spot was thoroughly dug out by the patient, the burning was relieved. She attributed this to "getting the bug out." According to her story, the bugs oftenest crawled out of the glabrous skin, only to relocate themselves in her scalp or eyebrows. Her house dresses and linens were washed and boiled daily. She herself had several baths a day and had applied much sulfur ointment recently. Her husband had acquired the complaint secondarily from her and was undergoing the same treatment. Her skin was very dry and scaly; and there were many small, crusted ulcerations scattered over her whole body. The external genitalia were tremendously hypertrophied from rubbing and scratching.

In treating this woman, she was not told that she had no parasites. She was told that her physical condition was such that she needed building up. An antipellagrous diet was outlined to her, with the importance of replacing starchy and sugary foods by protective foods and elimination of coffee drinking stressed. Menthol in petrolatum was prescribed for use on her skin. She went back to her home town, where her family physician gave her injections of a mixture of B complex vitamins. In addition, she was given 50 mg. tablets of niacinamide orally, on which she focused a faith that they would drive the parasites out of her body.

She was seen again, after a month's time, with markedly less pruritus and a weight gain of 11 lb. (5 kg.). She still thought there were a few parasites left. The marked swelling of the genitalia had receded. Because of the frequent taking of laxatives, she was advised to discontinue their use, as well as to cut down on her intake of pastry, which was excessive.

On Sept. 18, 1951, she was seen again. For the previous four weeks, she had been having profuse metrorrhagia, and her itching and delusion of parasitization were back full force. Later, a fibroid uterus was removed by her family physician. After this procedure she became completely free of her pruritus and delusion on an antipellagrous diet and had remained symptom free for over a year, according to a report from her family physician, in February, 1953.

Case 3.—A 69-year-old woman who had believed for three months that she was afflicted with scabies organisms was seen Sept. 11, 1951. She had typical dug-out, crusted lesions scattered over her body and was washing and boiling her bedding and clothing daily. She was in straitened circumstances and for four or five months had limited her food intake to black coffee, white bread, applesauce, canned orange juice, tapioca, and spaghetti. The only meat she had eaten during that time consisted of ½ lb. (240 gm.) of hamburger once every two weeks. She was not underweight.

This woman was told that she needed a better diet, which was carefully outlined to her. She was sent back to her home town with a request to her family physician that he give her 2 cc. of crude liver extract (Lilly) intramuscularly several times a week. She was able to get money to provide an excellent diet and multiple vitamin tablets. A total of four injections of crude liver extract were given weekly.

When she was seen at the end of two and one-half months, her skin was entirely normal and her phobia gone. How completely it was gone was amply testified to by her own summation: "Am I right? I never had any itch mites. This was only a matter of malnutrition?" A follow-up letter, one year later, produced the reply that she had remained free of difficulty.

CASE 4.—A 19-year-old youth was seen on Feb. 12, 1953, two months after an itching eruption on the forearms and sacral region had developed. This was diagnosed as scabies by a physician, and a benzyl benzoate preparation was prescribed. Crotamiton (Eurax), a copper compound in organic solvents (Cuprex), and Danish ointment, a compound sulfur ointment, were then tried in turn. Nothing relieved the pruritus or produced improvement in the dermatitis.

When seen, the patient had been washing and boiling his clothes daily, believing that he was killing the itch mites that he thought crawled out of his skin into his clothing. Crawling sensations had been noted on his skin, as well as severe, biting ones. He believed the bathroom where he lived to be swarming with fleas and had been dousing it liberally with Cuprex. This belief was a recent one, as he had been living in California at the onset of his disorder, and stated that there were no fleas in his living quarters there. Although exposure was denied, he also was afflicted with syphilophobia, having had blood taken for testing several times in the past few weeks.

His parents were Seventh Day Adventists and, like some of them, were nonmeat eaters. The patient himself had no scruples against eating meat but "just didn't like the taste of it." Until he was 14 years old, by which time he had finished ninth grade, he had lived on a farm; while his diet there contained no meat, he ate many eggs and much milk and cottage cheese. At that time, the family moved to California, from a rural to an urban location. From then on, protein foods were in short supply in his diet.

It is interesting that, until he moved to California, he made top grades in his school work. His grade average had consistently gone down after that, until, six months before onset of his disorder, he finished his first year of college with only average grades.

At the time that he was seen, his sole meat intake was two small hamburgers a week. He ate no eggs or nuts, few legumes, and only a pint of milk, or less, a day. He also ate few green, leafy vegetables, the larger part of his diet consisting of sweet rolls, cold cereals, and white bread, with the addition of chocolate bars eaten while at work.

He said that many of the lesions on his skin had been getting increasingly larger, having consisted of small "water blisters" to start with. There were about 20 pinhead-sized vesicles with no areolas scattered over the extensor surfaces of the forearms, with a few such vesicles on the extensor aspects of the arms and on the anterior surfaces of the legs below the knees.

On the outer surface of the left forearm near the elbow, there was a deep, hard, freely movable, hazel-nut-sized nodule, over which the skin was intact and of normal color. Over the sacral area there was an 8 by 20 cm. group of old and new lesions. All that remained of about a dozen older ones was nickel-to-dime-sized brown, superficial scars. Scattered among these were three or four new nodules similar to the one on the forearm, except that they were slightly smaller. There was no gingivitis or stomatitis, although the tongue was somewhat bare. A moderate amount of conjunctival injection was present. The appearance and distribution of the protean eruption resembled markedly the vesicular and nodular forms of dermatitis herpetiformis.

He was asked to take a multivitamin preparation by mouth and to cut down markedly on his ingestion of starchy and sweet foods, replacing them with eggs, meat, milk, and more green vegetables. He readily agreed to eat the meat. No local medication was prescribed for the skin.

When seen 12 days later, he was no longer worried as to whether he had syphilis and said that the itch mites had all been gone for four or five days, except for one that he felt had crawled into the skin of his left forearm that morning. At the site that he pointed out, a minute wheal and flare were visible.

Two days later he passed the physical examination given draftees and was inducted into the Army. A letter received from him six months later stated that his skin condition was completely gone. He also said that his memory was much better and that he was doing well in his classes.

COMMENT

It is significant that a history of poor eating habits was elicited on questioning the only patients with delusions of parasitosis whom I have seen in the past 11 years and that correction of their eating habits cured their affliction. The fact that crawling sensations and burning pain as from the bite of an insect were present may have led the patient to the wrong assumption that such symptoms were due to the presence of insects, quite apart from the family physician's having diagnosed scabies. Fantastic irrationalization as to the nature and habits of the supposed parasites may be connected with the fact that the central nervous system is particularly vulnerable to malnutritive changes, as manifested in pellagra.

Although the first patient was the only one with true pellagrous dementia, the others may have been in an earlier stage of nutritional deficiency characterized only by a psychoneurosis. Whether these changes, if severe and long-continued, could become irreversible is unknown.

It is interesting to review Wilson's report of the woman in whom this disorder developed during the presence of unwanted outsiders in her home and underwent a spontaneous cure after their removal. One wonders whether her recovery was due to resumption of more normal living habits, including that of eating, when the source of difficulty was removed.

In conversations with other physicians I have recently learned that often the opinion is held that quite an excess of calories from carbohydrate sources is curative in pellagra when a diet only relatively rich in excellent sources of protein, vitamins, mineral salts, and other desirable nutriments is used. These patients were told, however, that, beyond the minimum of sugar to make palatable several large servings of fruit daily, their consumption of carbohydrate at any one meal should be limited to one piece of whole grain bread, one serving of cooked whole grain cereal, or one small potato. As for the rest of their diet the protein content was raised to at least twice their normal need and approximately 75 gm. of fat was prescribed. Of this, 1 tbsp. (12 cc.) was to be used as plain oil salad dressing with a big helping of green leafy vegetables daily, in order to facilitate the absorption of the fat soluble vitamins from the greens. The use of iodized salt was recommended, as well as the eating of one weekly serving each of liver and ocean fish. It is interesting that, whereas the first two patients had no appetite, the last two had an excessive craving for sweets.

SUMMARY AND CONCLUSIONS

In one case of pellagrous mania, accompanied by pellagrous dermatitis and neurotic excoriations with trichotillomania, antipellagrous treatment effected a complete cure. In three other cases of delusions of parasitosis, delusions and the skin manifestations accompanying them were both cured by correction of a deficient diet. These results are especially significant in view of the fact that heretofore this condition has been highly resistant to treatment.

111 Grandview Court Apartments.

CHLORPROMAZINE IN THE TREATMENT OF NEUROPSYCHIATRIC DISORDERS

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The management of anxiety, agitation, and manic states in psychoneurotic and in psychotic patients is a problem inadequately solved by current therapeutic measures. Moreover, conditions such as severe obsessive-compulsive neuroses, chronic hypochondriasis, chronic schizophrenia, and agitated senile states are not consistently amenable either to convulsive or coma therapy or to psychoanalysis and other means of psychotherapy. To control the ever-increasing incidence of psychiatric disturbances, additional therapeutic aids are needed.

Recent studies conducted in Europe suggest the usefulness of a new drug, chlorpromazine, for managing and treating psychoneuroses and psychoses. Chemically it is 10-(γ-diethylaminopropyl)-2-chlorophenothiazine hydrochloride. Laboratory investigations [1] revealed that this compound possessed diverse pharmacological activity. Provocative from a psychiatric standpoint was its ability to abolish conditioned reflex responses in animals.

Chlorpromazine was developed in France and was first studied by French and other European investigators in surgery [2] and then in obstetrics [3] and psychiatry.[4] Observations by Delay, Deniker, and Harl [4a] that this compound controls psychomotor excitement in psychotic patients have been confirmed by Cossa and co-workers.[4b] In this country, Friend and Cummins [5] recently reported its use as an antiemetic agent.

This study was undertaken to assess the usefulness of chlorpromazine in relieving increased psychomotor activity seen in tension and anxiety states, mild to severe agitation, and hypomanic and manic behavior, as well as its usefulness in treating patients with delusions, hallucinations, and various obsessive-compulsive-phobic conditions. It was also given to patients with epilepsy and paralysis agitans.

MATERIAL

One hundred forty-two patients received chlorpromazine for two to eight months. Sixty-five were psychoneurotics, 5 had psychophysiological disorders, and 15 were ambulatory schizophrenics seen either in private practice or on an outpatient basis at Sidney Hillman Medical Center, Philadelphia. Twenty-seven agitated, senile patients were treated in a hospital for the aged, and 10 agitated and manic psychotic patients were treated in a psychiatric hospital. In addition, 12 patients with neurological disorders and 8 patients, who served in a dosage range study, were given the drug. Half of the hospitalized and the ambulatory groups had previously received psychiatric treatment that included symptomatic sedation with barbiturates, group and individual psychotherapy, carbon dioxide therapy, electroconvulsive therapy, and insulin coma therapy; the other half had not previously received psychiatric treatment. Clinical characteristics of the group, expressed as major symptoms according to standard nomenclature,[6] are listed in the table. In general, the symptom complex of the psychoneurotic patients was one of anxiety, palpitations of the heart, insomnia, profuse sweating, urinary frequency, decrease or loss of libido, gastrointestinal disturbances, dizziness, headaches, generalized aches and pains, and, in many cases, an obsessive-compulsive-phobic syndrome. The senile group showed all degrees of agitation with behavior problems, restlessness, and insomnia and was difficult to manage.

DOSAGE

In the nonhospitalized and the agitated senile patients, therapy was begun with an oral dose of 75 mg., 25 mg. with each meal. They were told that they might become drowsy during the first four to seven days of treatment, but that they should continue to take the drug since this effect would gradually diminish. The patients were reexamined weekly. At the end of the first week of treatment, the dosage was gradually increased, depending on the patient's response, until clinical improvement was obtained or excessive drowsiness occurred. If drowsiness interfered with the patient's normal activity, the dosage was decreased to 10 mg., three or four times daily. Patients received the drug for from 8 to 32 weeks and could be satisfactorily maintained on dosages of 30 to 150 mg. a day. Patient response to the drug varied considerably. Some patients responded well to 30 to 50 mg. a day; others required 150 mg. Some patients given 50 mg. a day became drowsy to the extent that it interfered with their normal activity, while others did not become drowsy when given 150 mg. a day. Hospitalized psychotic patients were given 25 mg. intramuscularly four times daily for the first two or three days and 50 mg. intramuscularly four times daily thereafter. The dosage was adjusted, increased or decreased, to maintain the patient in a resting or even a somnolent state.

RESULTS

The patient's clinical response was judged in three ways—self-appraisal, comments from friends and family, and psychiatric evaluation. So that the effect of chlorpromazine on the components of the illness, as well as on the illness as a whole, could be judged, each patient's

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Dr. Martin C. Sampson gave suggestions and Dr. Irving Goldenberg technical assistance in the study.

The chlorpromazine used in this study was supplied by Smith, Kline & French Laboratories as Thorazine. It was originally developed as R.P. 4560 by Rhone-Poulenc-Specia Research Laboratories, France. Abroad and in Canada, chlorpromazine is known as Largactil.

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total illness was divided into its signs and symptoms. The response was rated as 4, absence of symptoms; 3, marked improvement; 2, moderate improvement; 1, slight improvement; and 0, no improvement. Results of treatment, in relation to major signs and symptoms, are summarized in the table.

Severe anxiety and tension states responded well with chlorpromazine. Of 67 patients manifesting typical severe anxiety reactions, 56 showed improvement ranging

Results of Therapy with Chlorpromazine

	Degree of Improvement					Total No. of Patients
	4	3	2	1	0	
Psychoneuroses *						
Anxiety reactions	4	29	23	6	5	67
Obsessive reactions	1	3	2	..	2	8
Phobic reactions	1	2	2	..	2	7
Depressive reactions	1	1	5	3	2	12
Conversion reactions	5	9	14	5	12	45
Impotence	2	2	..	..	..	4
Stammering	..	1	1	2	1	5
Psychophysiological reactions (psychosomatic) *	1	1	2	..	1	5
Schizophrenia *						
Hallucinations	1	1	..	1	1	4
Delusions	2	2	..	2	1	7
Agitations	2	2	..	1	..	5
Senility with agitation *	8	7	3	2	1	21
Neurological disorders *						
Psychomotor epilepsy	1	..	..	..	1	2
Grand mal epilepsy	1	..	..	..	1	2
Petit mal epilepsy	..	..	..	..	2	2
Paralysis agitans	..	..	..	2	4	6
Manic-depressive-manic †	..	1	1	..	..	2
Senility with agitation †	3	3	..	..	..	6
Schizophrenia †						
Hallucinations	..	..	1	1	2	4
Delusions	..	2	2	..	..	4
Agitation	2	1	1	..	..	4

* Chlorpromazine given orally.
† Chlorpromazine given parenterally.

from moderate to complete relief of symptoms. Those patients who did not improve after taking the drug for three weeks usually did not improve with further treatment. Most patients reported that after one week they began to sleep better and to feel more refreshed on awakening. Anxiety was markedly reduced and often was replaced by a sense of well-being. Physical complaints decreased too; musculoskeletal symptoms that had persisted for years gradually diminished as did gastrointestinal symptoms. Improvement in mood was observed in patients who had been irascible, short tempered, and irritable. Patients who formerly waited for appointments by impatiently pacing up and down now sat quietly and waited their turn.

Five of six patients with phobic reactions reported at least moderate relief, and in one case the relief was complete. Six of eight psychoneurotic patients with obsessive thinking experienced moderate to complete relief. One patient who had had a 10 year history of severe obsessional and phobic symptoms, with great tension and marked urinary frequency, was unable to hold a job. Attempts at psychotherapy were futile, and frontal lobotomy was seriously considered; however, after taking the drug for four weeks, her phobias and urinary frequency disappeared and she started psychotherapy. Another candidate for lobotomy, a 28-year-old woman with a long history of disabling fears, phobias, and plaguing obsessional thoughts, who visibly gasped for air constantly, showed total relief of all symptoms after three weeks' treatment. This relief has been maintained for 16 weeks by a dosage of 100 to 125 mg. a day. These results suggest that no obsessive patient should have a frontal lobotomy until he has first been given chlorpromazine medication.

Twenty-seven senile patients who exhibited agitation, severe anxiety reactions, belligerence, difficulty in handling, or delusional reactions and who had been unsuccessfully controlled with the usual sedatives were treated with chlorpromazine. For three to seven days after they were given oral doses of the drug, half of the patients became aggravated. Shortly thereafter, a dramatic beneficial effect followed. Twenty-one of the 27 patients became markedly improved and remained improved during the two months they took the drug. Before treatment, the condition of two patients in this series had become so extreme that they had been considered for placement in a state mental institution. While receiving the drug, they improved greatly and were then described as "ideal patients" by the nursing staff. These results, though preliminary, indicate that chlorpromazine is superior to phenobarbital or other barbiturates for relieving agitated and belligerent destructive states in elderly persons. Six other senile patients who were extremely agitated and unable to sleep were successfully controlled when given a dose of 25 mg. intramuscularly.

Chlorpromazine appears to calm the patients without depressing their mental processes as the barbiturates do. And the risk of suicide appears considerably less with chlorpromazine than with barbiturates. Deniker [7] told of a patient who attempted suicide by taking 30 tablets (750 mg.), lapsed into a coma-like state, but recovered uneventfully within a few days without the aid of analeptics.

Eight moderately to markedly agitated psychotic patients were adequately controlled with doses of 50 to 75 mg. of chlorpromazine intramuscularly, three or four times daily. Oral doses of 100 mg., four times a day, failed to quiet them. In one schizophrenic patient, a complete reversal of paranoid delusional features and of hallucinations occurred. Another elderly paranoid schizophrenic patient, who was so belligerent and nasty that she cursed vilely when anyone entered her room, was given 50 mg. of the drug intramuscularly three times a day. Attendant nurses reported afterward that the patient was less belligerent and more friendly to the staff than she had ever been in her several years' stay at the sanatorium. Two other psychotic patients, who were not hospitalized, were given oral doses. One of them, who had a rather sudden onset of paranoid delusions, ideas of reference, and auditory hallucinations with marked anxiety had a complete reversal of symptoms when given an oral dose of 25 mg. four times a day. Another paranoid patient with marked anxiety reactions said the medication "made him more like himself," and, though his delusions were still present, he did not seem to be bothered by them.

7. Deniker, P. G.: Personal communication to the author.

Six patients with epilepsy were treated with chlorpromazine, and, although four did not benefit from the drug, results were singularly good in the two other patients. A patient with intractable psychomotor epilepsy had been experiencing about three seizures a week while receiving diphenylhydantoin (Dilantin) sodium, phenobarbital, and Mesantoin (3-methyl-5,5-phenylethyl hydantoin). The neurosurgical staff had recommended a temporal lobotomy for this patient. During the period that this operation was being considered chlorpromazine was added to the regimen and, until the supply of chlorpromazine ran out, the man had no seizures (for two months). This seemed to demonstrate the potentiating effect of chlorpromazine on other drugs, especially its effect on the barbiturates as reported by Courvoisier and Fournel.[1] Another epileptic patient who has had grand mal seizures for 33 years has been maintained fairly comfortably with a regimen of diphenylhydantoin and phenobarbital; however, she continued to have biweekly seizures and could not tolerate an increased dosage. Chlorpromazine was, therefore, added to the regimen, and, since then, she has been free of seizures for three months. From these two cases, one can hardly generalize; however, the results are interesting and warrant further study. Six patients with paralysis agitans were given chlorpromazine, but no significant change was observed. No improvement or potentiating effects were observed when the drug was given with Rabellon (a compound of belladonna alkaloids) and trihexyphenidyl (Artane).

It was observed that with short-term therapy the beneficial effect of chlorpromazine lasted for two to four days after its administration was stopped. With long-term therapy (three to six months), the beneficial effects of the drug usually persisted after therapy had been discontinued for two to five months.

SIDE-EFFECTS

Some degree of drowsiness was reported by almost all patients when they started taking the drug. In most cases, this effect diminished or disappeared by the end of the first week of treatment. Drowsiness could usually be counteracted by giving 5 mg. of *d*-amphetamine (Dexedrine) sulfate or 180 mg. of caffeine citrate with the morning and noon doses of chlorpromazine. Twenty per cent of the patients reported dryness of mouth; 10% complained of a bad or bitter taste in their mouths. Fifteen per cent of the patients remarked that they had experienced an increased frequency and intensity of dreaming. These dreams were vivid and filled with emotional content. Constipation was reported infrequently. In two patients in whom urticarial dermatitis developed, this side-effect cleared during the second week of treatment in one and had almost cleared by the 14th day of treatment in the other, but this patient discontinued medication at that time.

In three patients who had taken chlorpromazine for approximately two to five weeks jaundice developed, but subsided when administration of the drug was discontinued. It is unknown, at this time, whether this was a true toxic effect. Liver biopsy of one of these patients revealed the presence of chronic liver damage and suggests that the drug may precipitate jaundice in patients with impaired hepatic function. In England, in a few patients in whom administration of chlorpromazine was discontinued because of jaundice, the drug was given again when the condition subsided, and it was tolerated without a recurrence of the disorder.[8] Intense investigation is under way in this series of patients to determine whether chlorpromazine is implicated in liver dysfunction.

A fall in blood pressure was observed in seven of eight patients after they were given an intramuscular injection of 50 mg. of chlorpromazine. The resultant hypotensive effect varied from 5 to 60 millimeters of mercury systolic, and 5 to 25 millimeters of mercury diastolic. Although in some cases the drop in blood pressure was marked—the greatest drop occurred in hypertensive patients—there appeared no danger of shock. It is well, however, to follow the example of Deniker and other European investigators who instruct their patients to remain lying down after receiving the drug parenterally. Local reactions at the site of injection appeared minimal. No significant change was observed in blood cell counts routinely made on patients in this study.

POSSIBLE MODE OF ACTION

Chlorpromazine affects the central and autonomic nervous systems and exhibits diverse pharmacological actions. It possesses depressant properties, alters conditioned reflex responses in animals, reduces blood pressure and body temperature, blocks apomorphine-induced vomiting and intensifies and prolongs the action of barbiturates, narcotics, ether anesthesia, muscle relaxants, and ethyl alcohol. Although its mode of action has not been clearly defined, Laborit and co-workers[9] believe that chlorpromazine modifies or interferes with synaptic transfer of excessive psychomotor excitement between cortical areas and the diencephalon so that conscious perception of, and pattern of reaction to, personality-disturbing stimuli are altered. In the present study, it was observed that, when given parenterally and in sufficient doses to psychotic or severely obsessive patients, the drug produced an effect similar to frontal lobotomy. Patients who had been severely agitated, anxious, and belligerent became immobile, wax-like, quiet, relaxed, and emotionally indifferent; unlike persons who have received barbiturates for sedation, they remained responsive when spoken to and could easily be awakened if they fell asleep. From the side-effects produced, it seems likely that the drug modifies sympathetic ganglionic and postganglionic functions as well.

TOLERANCE

Two-thirds of the patients experiencing drowsiness became tolerant to this side-effect of the drug, whereas only two of the patients in the series had partial tolerance to the beneficial action of chlorpromazine. These effects are being studied further; however, at this point it is probable that there exists no relation between tolerance to its beneficial action and tolerance to its side-effects.

Because chlorpromazine has transient soporific properties, it is possible and often desirable to give the medication before bedtime, for in this way a troublesome side-effect can be used advantageously while tolerance

8. Harper, J.: Personal communication to the author.
9. Laborit, H.; Huguenard, P., and Alluaume, R.: Un nouveau stabilisateur vegetatif (4560 R.P.), Presse méd. **60**: 206, 1952.

to it is developing. Since patient response varies considerably, the optimum dose for each patient is best determined on an individual basis. In general, however, the following regimen can be used to reduce the drowsiness that occurs during the first days of treatment. The patient should be instructed to take a 25 mg. dose one-half hour before bedtime for the first three days. While tolerance to drowsiness is being developed, this side-effect can be used constructively, for patients will often fall asleep easily and quickly and will feel refreshed on awakening. On the fourth day patients should begin taking 25 mg. with breakfast as well as 25 mg. at bedtime until they can tolerate this dosage without undue drowsiness. After this, the dosage should be increased; the patient should take the drug with the evening meal, as well as before bedtime and with breakfast. Depending on response, the dosage can be increased further by instructing the patient to take the drug with each meal and at bedtime.

CONCLUSIONS

From the results of this study, it can be said that chlorpromazine (10-[γ-diethylaminopropyl]-2-chlorophenothiazine hydrochloride) has a definite place in the treatment of neuropsychiatric patients, both by the general practitioner and by the psychiatrist. Chlorpromazine should not be considered merely a chemical restraint that has no real effect on the patient's illness; on the other hand, it cannot be used as a panacea for all psychiatric ills. Although it should never be given as a substitute for analytically oriented psychotherapy, it must be considered a true therapeutic agent with definite indications. The drug is especially remarkable in that it can reduce severe anxiety, diminish phobias and obsessions, reverse or modify a paranoid psychosis, quiet manic or extremely agitated patients, and change the hostile, agitated, senile patient into a quiet, easily managed patient.

1911 Spruce St. (3).

NEEDLE BIOPSY OF THE LUNG

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and
Charles L. Geraci, M.D., San Carlos, Calif.

It is often extremely difficult to ascertain the nature of a lesion in the peripheral portion of the pulmonary parenchyma. Roentgenographic evidence of the presence of a region of increased density within a lung is always an indication for additional diagnostic procedures. Among those frequently utilized are examination of smears of sputum for organisms and malignant cells, cultures for bacteria and fungi, and bronchoscopy. All of these may fail to provide a definitive diagnosis, especially with lesions located distal to the secondary bronchi, and in recent years there has been an increasing tendency for physicians to recommend thoracotomy with biopsy resection of the lesion in such circumstances. There is a well-characterized group of cases, however, in which the latter may be neither desirable nor practical.

The technique of using a needle passed through an intercostal space to obtain a fragment of diseased tissue from peripheral pulmonary lesions was described and highly recommended in articles by Craver and Binkley [1] and by Craver.[2] Overholt [3] in 1940 criticized the use of needle biopsy with a statement that the procedure was useless as well as dangerous. Recently one authority [4] on pulmonary neoplasms has stated, "Although approved of initially, the associated danger of implant metastasis in the tract of the aspirating needle has fostered much controversy as to the practicability of its continued use." In addition to the possible spread of tumor tissue, other dangers that dictate caution in the use of needle biopsy of the lung include pneumothorax, empyema, air embolism, and hemorrhage. Of these, empyema has been reported once,[3] but it is reassuring to know that in a review [5] of more than 2,000 cases of lung puncture that were done to obtain bacteria in cases of pneumonia the incidence of empyema was not significantly greater than in comparable cases in which aspiration was not done. Among 230 pulmonary aspirations reported by Craver,[2] the only notable complications were two instances of probable cerebral air embolism, neither of which terminated fatally.

We believe that there are cases in which needle biopsy is a valuable procedure, and that, if it is used only when indicated, the danger of complications will be negligible in relation to the information obtained. The procedure should be reserved for patients who are suspected of having malignant tumors of the lung, either primary or metastatic, and there should be evidence to indicate that surgical extirpation is not feasible before needle biopsy is given preference over thoracotomy. These cases occur fairly frequently, and the recognition that they meet the criteria for needle biopsy may save weeks of uncertainty during which therapy is delayed.

The technique of aspiration biopsy of the lung recommended by Craver [2] was the introduction into the mass of a short-bevel no. 18 needle followed by attempts to aspirate groups of cells from the lesion with a syringe. More recently Tripoli and Holland [6] have described the use of the Vim-Silverman biopsy needle for this procedure, and it is the latter instrument that we have found most satisfactory in our cases.

From the San Francisco Veterans Administration Hospital, San Francisco.

1. Craver, L. F., and Binkley, J. S.: Aspiration Biopsy of Tumors of the Lung, J. Thoracic Surg. **8**: 436-463, 1939.
2. Craver, L. F.: Diagnosis of Malignant Lung Tumors by Aspiration Biopsy and by Sputum Examinations, Surgery **8**: 947-960, 1940.
3. Overholt, R. H.: Curability of Primary Carcinoma of the Lung: Early Recognition and Management, Surg., Gynec. & Obst. **70**: 479-490, 1940.
4. O'Keefe, J. J.: The Cytologic Diagnosis of Primary Bronchogenic Carcinoma, Laryngoscope **60**: 931-938, 1950.
5. Sappington, S. W., and Favorite, G. O.: Lung Puncture in Lobar Pneumonia, Am. J. M. Sc. **191**: 225-234, 1936.
6. Tripoli, C. J., and Holland, L. F:. Carcinoma of the Lung: Analysis of 195 Cases with Special Note on Needle Puncture Biopsy, South. M. J. **33**: 559-565, 1940.

PROCEDURE

The procedure is a simple one. The only special equipment required is a Vim-Silverman biopsy needle. A barbiturate and morphine or meperidine hydrochloride are used as premedication. Under fluoroscopic control the location of the tumor is ascertained, and by rotation of the patient the point where the lesion is nearest the chest

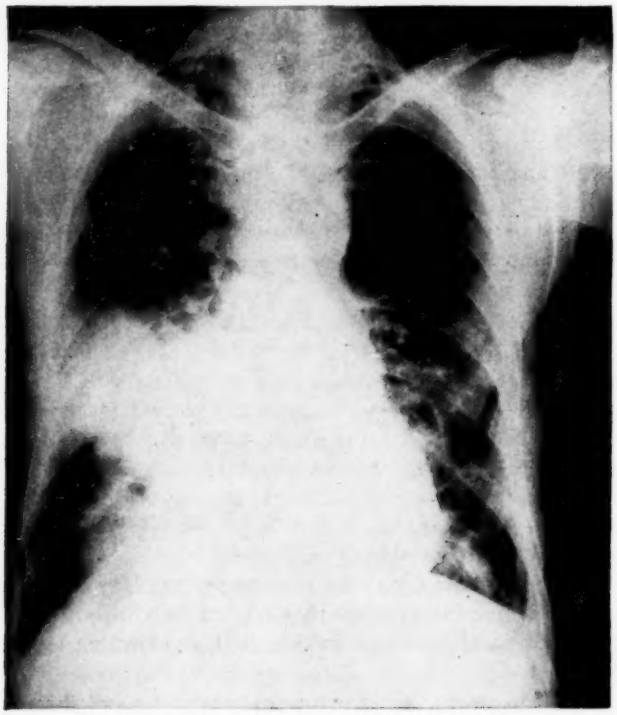

Fig. 1 (case 2).—Posteroanterior roentgenographic view of chest. Note the areas of increased density in both lungs.

wall is determined. This area of the chest wall is marked with thimerosal (Merthiolate), and the room is lighted while the skin and the subcutaneous tissues are infiltrated with 1% solution of procaine hydrochloride. The biopsy trocar and sheath are inserted through the skin and appropriate intercostal space in the direction of the tumor. With the patient again before the fluoroscope, the trocar is passed into the lung tissue and the periphery of the tumor mass. The trocar is then withdrawn from the sheath, and the cutting blades are inserted down the sheath into the tumor mass. The blades are driven forward to the hilt with a slight twisting motion. This carries them approximately 2 cm. beyond the sheath and into the tumor tissue. The blades are then rotated completely several times to sever the core of tumor tissue and the blade is then withdrawn. The core of tumor tissue is found between the blades, and it is dropped into a 4% solution of formaldehyde.

The Vim-Silverman needle is relatively short, making it impossible to reach the more central and obviously more dangerous portions of the lung. Because the biopsy must necessarily be from a peripheral area, the serious complications of air embolism and hemorrhage are minimized and have not been encountered in our cases. After the needle has been withdrawn, the patient is again examined fluoroscopically to exclude the possibility of pneumothorax or rapidly collecting intrapleural fluid, which would indicate hemorrhage, and he is then returned to his room. Postoperatively, the patient is kept in bed for the remainder of the day, and pulse and blood pressure readings are checked every four hours. Antibiotics are not administered unless the procedure is followed by fever. On the second day the patient resumes his usual activity. All of our patients have tolerated the procedure without untoward incident.

REPORT OF CASES

Case 1.—A 52-year-old white painter was admitted to the hospital because of hemoptysis of five days' duration. One year previously he had sought medical care because of palpitation, and a chest film had indicated the presence of a mass in the right lung, but there was no attempt to ascertain the nature of the mass at that time.

He had lost 15 lb. (6.8 kg.) in the three months prior to this admission, and for two weeks he had noted extreme fatigue on slight exertion. Five days before entering the hospital he had begun to expectorate small amounts of blood-tinged sputum during attacks of coughing. The patient had smoked approximately 20 cigarettes per day for more than 30 years.

Examination revealed a left supraclavicular lymph node that was 1.5 cm. in diameter. An area of dulness to percussion was localized over the base of the right lung, and breath sounds were increased in this region. No other abnormal signs were elicited. Sputum smears and cultures repeatedly contained no acid-fast bacilli or fungi; examinations showed no exfoliated tumor cells. Intradermal tests with tuberculin and coccidioidin were negative.

Chest roentgenograms revealed the presence of a roughly spherical mass, which was 6 cm. in diameter, in the dorsal portion of the right midlung field. There was also a smaller mass in the upper lobe of the left lung, near the aortic arch.

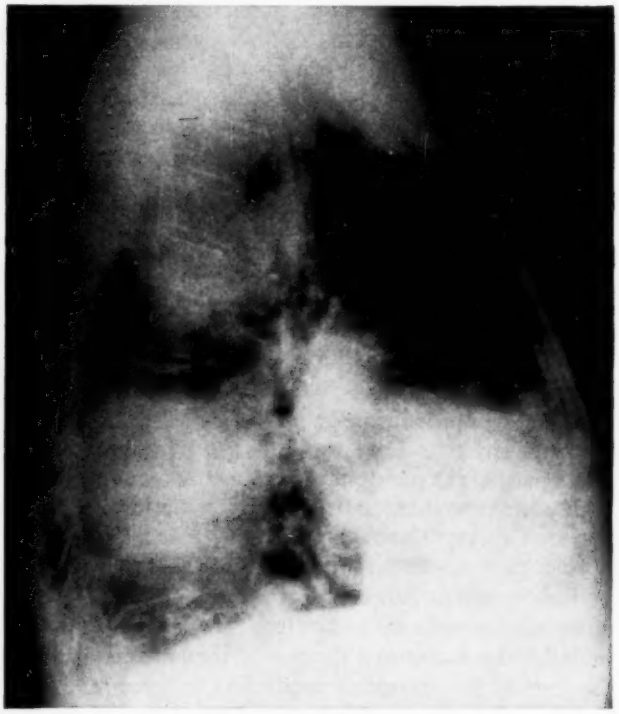

Fig. 2 (case 2).—Lateral view, permitting localization of one mass in the posterolateral portion of the periphery of the right lung, an area suitable for approach with the biopsy needle.

The left supraclavicular node was excised together with several paratracheal nodes from the left lower cervical region. The microscopic architecture of the nodes was normal. Bronchoscopy was performed without revealing abnormality, and washings from the bronchi contained no tumor cells, acid-fast bacilli, or fungi. A needle biopsy of the mass in the right lung was done according to the technique described, and the specimen contained a mass of poorly differentiated carcinoma cells. Curative

surgery was impossible because of the presence of disease in both lungs, and palliative therapy with radiation or chemotherapeutic agents was not felt advisable for the relatively slight symptoms. As further symptoms develop, appropriate therapy will be instituted.

CASE 2.—A 57-year-old farmer entered the hospital because of weakness, loss of 15 lb. during the preceding three months, and cough and chest pain for the previous three years. One year

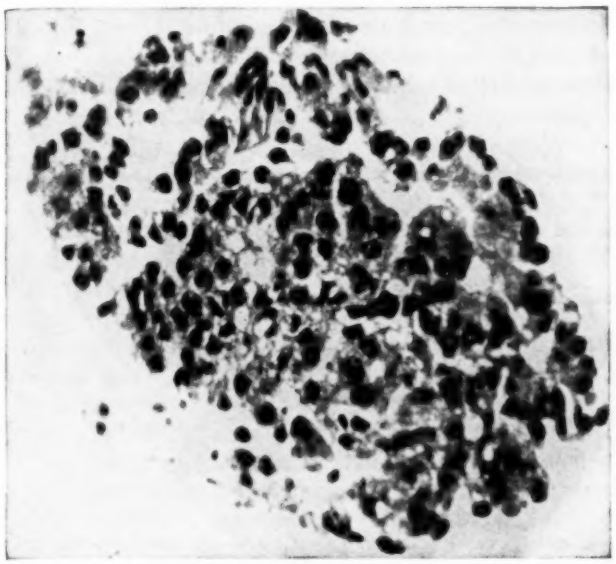

Fig. 3 (case 3).—Specimen obtained by needle biopsy of right lung. Carcinoma cells are readily identified (hematoxylin and eosin, × 100).

after the onset of coughing, small amounts of blood were noted in the sputum over a period of two or three days. The patient had smoked approximately 20 cigarettes per day for 25 years. He was emaciated and his skin turgor was poor. Breathing was easy but was frequently interrupted by coughing. The trachea was deviated slightly to the right. There was diminished vocal fremitus, percussion dulness, and indistinct breath sounds over the right lung. An opaque shadow in the right lung was seen on roentgenograms of the chest (fig. 1 and 2), and there was a destructive lesion of the body of the third cervical vertebra. Skin tests with tuberculin and coccidioidin were negative. Smears and cultures of sputum and bronchial washings contained no demonstrable acid-fast bacilli, fungi, or tumor cells. Bronchoscopy revealed normal mucosa in all visible bronchi. The patient was referred for needle biopsy of the pulmonary mass, and the specimen contained malignant cells within a well-defined alveolar pattern. Deep roentgen-ray therapy was given, with good relief of the thoracic pain, but the patient's condition deteriorated rapidly, and he died one month after the biopsy had been made. The autopsy revealed primary bronchiolar (alveolar cell) carcinoma of the right lung with metatases to the bronchopulmonary lymph nodes and the liver.

CASE 3.—A 58-year-old teamster was admitted to the hospital complaining of generalized weakness that had begun three months previously and had been gradually progressive until he was unable to continue working. There had also been dull pain in the right side of the chest for the two weeks prior to admission. There was marked hypertrophic osteoarthropathy, and an area of dulness and diminished breath sounds was present over the lateral aspect of the midportion of the right side of the thorax. The liver was greatly enlarged.

The roentgenograms of the chest indicated the presence of a region of relative density in the lateral aspect of the right lung. There were no demonstrable acid-fast bacilli, fungi, nor tumor cells in specimens of sputum, and bronchoscopy and bronchial washings did not yield information of diagnostic importance. Needle biopsy of the mass in the right lung resulted in a diagnosis of poorly differentiated carcinoma (fig. 3), and roentgen therapy was instituted with considerable improvement in the patient's general condition and relief of the thoracic pain that had begun to afflict him. Three months after the needle biopsy a firm subcutaneous mass 3 mm. in diameter was palpated at the site of the scar that had resulted from the passage of the needle through the skin. Biopsy yielded a mass of neoplastic cells embedded in the subcutaneous tissue (fig. 4). The patient was still alive six months after the needle biopsy, and he was comfortable except for moderate weakness and occasional pains in the right side of the chest, which have been readily controlled with narcotics.

COMMENT

Needle biopsy of the lung has proved to be a useful procedure in certain cases in which a diagnosis of malignant neoplasm of the lung is suspected. It should be employed when there is evidence to suggest that the patient has a malignant tumor of the lung that could not be cured by resection, and its use should be restricted to cases in which other diagnostic methods have failed to identify the pulmonary lesion. Efforts should also have been made to determine whether there is a malignant neoplasm elsewhere in the body that might be the source of secondary lesions in the lungs. The procedure should be done only in cases in which the following criteria are met: 1. The chest films reveal one or more opaque lesions in the peripheral pulmonary tissue. 2. Examination of several smears and cultures of sputum and gastric washings have been done without isolating Mycobacterium tuberculosis or fungi. 3. Evidence of a malignant neoplasm cannot be obtained by the techniques of exfoliative cytology or by bronchoscopic examination and biopsy. 4. There is clinical evidence of incurability of the lesion.

Our concept of needle biopsy is that it should be utilized to obtain tissue for microscopic examination prior to the use of palliative measures such as irradiation or chemotherapy. If the evidence suggests that the lesion

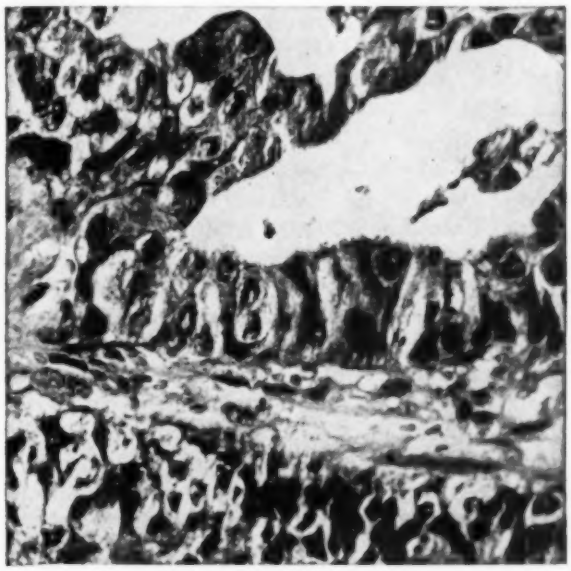

Fig. 4 (case 3).—Specimen removed from subcutaneous tissues of chest wall at site of needle tract, three months after needle biopsy. The diagnosis was adenocarcinoma (hematoxylin and eosin, × 225).

might be completely resected, or if there is good reason to believe that the mass is a tuberculous or other inflammatory process, thoracotomy with appropriate resection is the procedure of choice. It should be emphasized that, if there is a possibility that a resective procedure could be curative, the patient does not meet our criteria for needle biopsy.

The possibility that neoplastic cells might be implanted along the tract of a biopsy needle has been presented as a theoretical objection to needle biopsy,[4] and in one of our cases such an implant occurred, leading to the development of a subcutaneous mass of tumor tissue. If needle biopsy is done only in cases in which there is already evidence of inoperability, the possibility of predisposing to such localized spread of tumor need not prevent the use of the procedure when it is required.

The value of aspiration biopsy of the lung has been emphasized by Van Ordstrand and Lambert [7] in their presentation of 12 illustrative cases, in 10 of which it served in the diagnosis of primary or secondary malignant neoplasms while in the other two it led to the exclusion of neoplasm in patients who had been thought to have tumors. A larger series has been reported more recently by Gledhill, Spriggs, and Binford [8] in which the procedure is also shown to be a safe one that may be of inestimable value in the subsequent management of the patient.

SUMMARY AND CONCLUSIONS

Needle biopsy of peripheral masses in the lung is indicated when there is reason to believe that such masses are incurable malignant tumors and when other diagnostic measures have failed to identify the lesions. The use of such biopsies can supply information that must be obtained before rational palliative therapy can be started.

2907 J St. (Dr. Dutra).

7. Van Ordstrand, H. S., and Lambert, T. H.: The Value of Aspiration Lung Biopsy in Diagnosis: with Illustrative Cases, Cleveland Clin. Quart. **8**: 175-189, 1941.

8. Gledhill, E. Y.; Spriggs, J. B., and Binford, C. H.: Needle Aspiration in Diagnosis of Lung Carcinoma: Report of Experience with 75 Aspirations, Am. J. Clin. Path. **19**: 235-242, 1949.

SPONTANEOUS PNEUMOTHORAX AND ITS TREATMENT

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and
Capt. Robert L. Swartzel (MC), U. S. A. F., Denver

The etiology and treatment of spontaneous pneumothorax have received consideration by many authors. Laennec is credited with having suspected the part played by emphysematous blebs. This was later confirmed by Devilliers [1] in 1826. With the development of knowledge about the causes and possible pathogenesis there has not been complete agreement as to the proper methods of treatment. This report deals with a review of 35 cases seen at the Lowry Air Force Base Hospital, Denver, from Jan. 1, 1951, to July 31, 1953. An analysis of the clinical material, a method of roentgenologic recording of the extent of pneumothorax, and the methods of treatment are presented.

Clinical Analysis.—This study covers 35 patients: 34 men and 1 woman, all Caucasian. Since all of these patients are from a military age group, analysis by age is not of much significance. However, previous studies have shown that the greatest incidence of pneumothorax is in the third decade of life. This would explain the high incidence in the military age group. The duration of symptoms and the extent of pneumothorax show no correlation. The duration of chest pain was from a matter of an hour to several days. The pain described was characteristically sudden in onset and sharp in character. The pain was aggravated by deep inspiration, and there were varying degrees of dyspnea and orthopnea.

There was no consistent history of stress or strain at the time of onset. No patient was engaged in flying at the onset of pneumothorax. Many patients were awakened from sleep by pain. One was standing by a mountain stream fishing at the onset of pain. None was lifting at the time symptoms began. The results of tests for acid-fast bacilli in the sputum and gastric washings of 28 of the 35 patients were negative. Ten (35%) of 28 had positive reactions to second strength tuberculin.

1. Devilliers, A.: Du Pneumothorax déterminé par la rupture de la plèvre et d'une vésicule aérienne emphysémateuse, Thesis, Paris, 1826.

Roentgenologic Consideration.—A method of estimating the reexpansion period for a case of spontaneous pneumothorax treated with bed rest alone was devised. This allows a comparison of methods of treatment and indicates the probable length of hospitalization in a case of spontaneous pneumothorax treated with bed rest alone. Although the amount of collapse cannot be measured directly, a determination on a chest roentgenogram of the areas of the collapsed lung and the hemithorax on the involved side yields a calculated per cent of pneumothorax similar to the real volume percent of pneumothorax (fig. 1). The area of the collapsed lung is subtracted from the area of the hemithorax. This difference divided by the area of the hemithorax gives the per cent of pneumothorax. The reference points for determining the area of collapsed lung in the figure are the extreme superior (*a*), lateral (*b*), and inferior (*c*) borders of the lung and the center of the mediastinum (*d*). The reference points for determining the area of involved hemithorax are the inferior border of the first rib (*A*), the inner border of the midlateral chest wall (*B*), the tip of the costophrenic angle (*C*), and the center of the mediastinum (*D*). These reference points describe rectangles similar to the exact area of the collapsed lung and of the involved hemithorax. All possible variables in a given case remain constant from one examination to the other, giving validity to calculations and allowing a fairly accurate comparison of similar types of cases.

The per cent of pneumothorax was calculated on all films of 16 cases treated with bed rest alone. Those cases having insufficient filming data were not considered. A graph plotting the per cent of pneumothorax throughout the reexpansion period against the time in days required for recovery was prepared. It was apparent that the 16 curves of reexpansion were similar. Therefore, a calculation of an average air absorption rate in per cent per day for the 16 cases has some degree of accuracy. This av-

erage rate of air absorption is 1.25% per day, subject to daily variations. This index allows one to predict how long it would take to reexpand the lung with bed rest alone.

Treatment.—Earlier, tuberculosis was considered to be a common etiological agent. Consequently, maintaining the pneumothorax was felt to be good treatment. Kjaergaard,[2] in 1932, showed from a study of spontaneous pneumothoraces in apparently healthy persons that tuberculous pulmonary disease was not a frequent finding. This fact was later substantiated by Orstein and Lercher.[3] As it became apparent that the pneumothorax occurred as a result of rupture of a subpleural bleb without any other associated pulmonary disease, more active methods of treatment were indicated. The main indications for surgical intervention were tension pneumothorax (intrapleural pressure greater than atmospheric pressure), chronic unexpanded lung, and recurrent attacks of pneumothorax. In recurrent pneumothorax many substances have been used to provoke pleural adhesions. These have included guaiacol, iodoform, iodized oil, dextrose solutions, silver nitrate, and iodized talcum. These agents were instilled at thoracotomy or were inserted via the thoracoscope. Surgical methods used for the treatment of chronic spontaneous pneumothorax have included closed catheter drainage with waterseal, phrenic paralysis, thoracoscopy and internal pneumonolysis, and open thoracotomy with employment of either excisional methods or plication of the involved area.

Kreutzer,[4] in 1952, reported 10 cases of spontaneous pneumothorax treated with constant intrapleural suction. He and his associates stated, "An ideal treatment for recurrent or spontaneous pneumothorax should offer the patient a rapid return to work with a reasonable chance of permanent cure. The treatment should have a very low risk." They inserted a no. 18 F. Foley catheter through the thoracoscope following thoracoscopy. The patients were taken to the x-ray room, and the reexpansion was started with 5 cm. of water of intrapleural suction and was followed by direct fluoroscopic visualization. Suction was applied for five minutes. If the lung was not reexpanded negative pressure was increased by another 5 cm. of water. They felt that no more than 30 cm. of water suction should be used. Usually a pressure below 20 cm. was adequate. When fluoroscopy showed lung reexpansion the patient was returned to the ward, where suction was continued at 25 cm. of water for three days. All patients had over 50% collapse; four had over 90%.

The literature contains few reports of this method being utilized. Hawkins,[5] in 1948, successfully treated by means of continuous intrapleural suction a 31-year-old man who had a recurrent bilateral pneumothorax. Smart,[6] in 1949, suggested that continuous intrapleural suction might be of aid in the treatment of tension pneumothorax, but gave no specific details. Hughes, in 1951,[7] reported a series of 40 patients treated at the Kennedy Veterans Administration Hospital. Treatment with an intercostal Foley catheter with waterseal drainage was used in 30 instances with 3 failures. If the lung failed to reexpand by waterseal alone, suction was not used. The average hospitalization for minimal collapse was 10.9 days. Six patients required thoracotomy when conservative measures failed.

With any method of treatment the primary aim is to restore cardiorespiratory physiology as quickly and safely as possible and to return the patient to productive activity with a minimum loss of time. Rapid obliteration of pneumothorax space will also reduce the incidence of complications such as empyema. We analyzed the cases in this report to arrive at criteria to achieve these aims. If one can predict with fair accuracy how long it will take for a given pneumothorax to reexpand with bed rest alone, one can then determine if more active treatment should be instituted. Review of roentgenograms shows that a pneumothorax reexpands about 1.25% per day if treated with bed rest alone. Consequently a pneumothorax of 45% would take approximately 36 days for complete reexpansion of the lung. Of 35 cases, 5 have been treated with intercostal tube drainage with waterseal and 3 have been treated with intercostal tube drainage plus intrapleural suction.

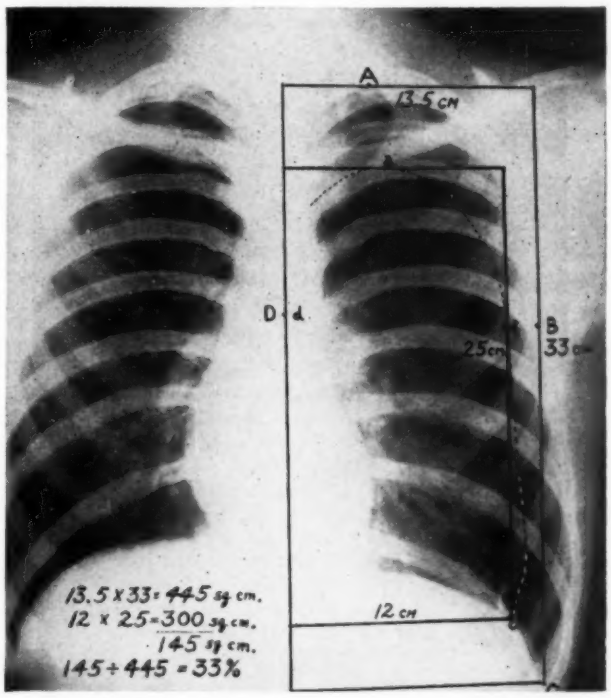

Fig. 1.—Roentgenogram showing method of calculating percentage of pneumothorax.

REPORT OF CASES

CASE 1.—A 29-year-old white man was admitted to the Lowry Air Force Base Hospital on Oct. 20, 1951. Twelve years prior to this hospitalization he had had a spontaneous pneumothorax, right side, at civilian flying school in Florida. Treatment consisted of the use of blow bottles and supportive measures. After several weeks his lung expanded. He was

2. Kjaergaard, H.: Spontaneous Pneumothorax in the Apparently Healthy, Acta med. scandinav., supp. 43, pp. 1-159; pp. 1-93, 1932.

3. Orstein, G. C., and Lercher, L.: Spontaneous Pneumothorax in Apparently Healthy Individuals: Clinical Study of Fifty-Eight Cases with Discussion of Pathogenesis, Quart. Bull. Sea View Hosp. **7**: 149-187, 1942.

4. Kreutzer, F. L.; Brizzolara, L. G., and Rogers, W. L.: Treatment of Spontaneous Pneumothorax by Means of Continuous Intrapleural Suction, Dis. Chest **21**: 663-676, 1952.

5. Hawkins, C. F.: Chronic Bilateral Spontaneous Pneumothorax: Difficulties in Treatment, Lancet **1**: 288-289, 1948.

6. Smart, J.: Spontaneous Pneumothorax and Its Treatment, M. Press **221**: 38, 1949.

7. Hughes, F. A., Jr.; Kraeft, N. H., and Lowry, C. C.: Treatment of Idiopathic Spontaneous Pneumothorax, J. A. M. A. **146**: 244-247 (May 19) 1951.

asymptomatic until Oct. 20, 1951. On that afternoon, while sitting in a chair talking, he experienced sudden onset of pain in the right chest and shortness of breath. Pain was aggravated by deep inspiration. He was brought to the dispensary. An examination and chest roentgenogram showed an 82% pneumothorax on the right side. His admission temperature was 98.6 F, his blood pressure was 110/55 mm. Hg, and his pulse rate was 100 to 120. His respiratory distress was great. His history and family history were non-contributory except for the above incident 12 years prior to this hospitalization. After surgical consultation had been held, an intercostal tube was inserted in the second right anterior interspace, midclavicular line, under 2% procaine local anesthesia (fig. 2). A catheter was attached to waterseal drainage. The patient was encouraged to cough, and air bubbled freely from the water trap. His respiratory distress decreased rapidly. His pulse rate and blood pressure remained stable. This treatment was continued for 48 hours, and there was no evidence of reexpansion of the lung by waterseal drainage alone. Then a suction of 12 cm. of water was attached to the waterseal. The patient complained of tightness in his chest; however, his pulse rate was

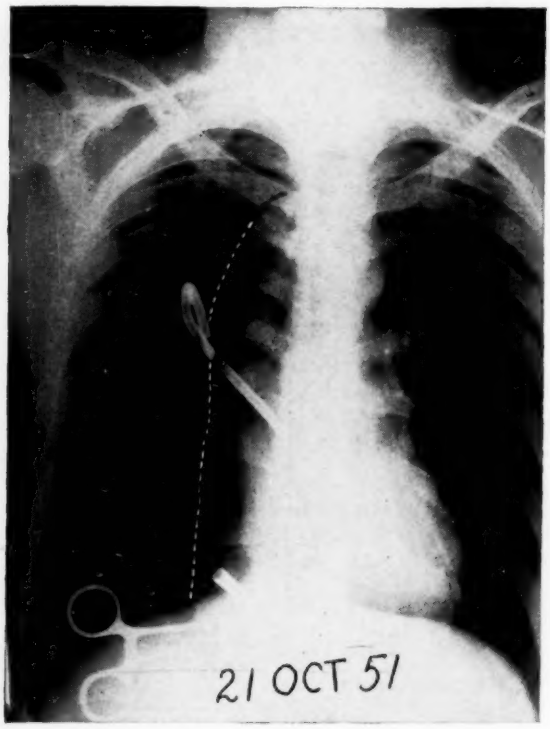

Fig. 2.—Roentgenogram of the patient reported on in case 1 showing the extent of collapse of the lung and the catheter tubes in place.

92 and regular. After 10 to 15 minutes of suction had been administered, air stopped bubbling from the chest tube and a physical examination showed evidence of lung reexpansion. Chest tightness disappeared after one hour. The following day the patient had a temperature of 100.8 F, which returned to normal the following day. He was given ammonium chloride expectorant to loosen the bronchial secretion. Since he was sensitive to penicillin he was given chloramphenicol (Chloromycetin), 250 mg. every six hours. A chest roentgenogram showed the lung to be expanded. The intercostal tube was removed 96 hours after insertion. No fluctuation or drainage had been present for 24 to 36 hours. Subsequent roentgenograms showed the lung to remain expanded. The patient was afebrile and asymptomatic. He was discharged after a hospital stay of nine days. Second-strength purified protein derivative tests and gastric washings for acid-fast bacilli were negative.

Case 2.—A 21-year-old white man was admitted to the Lowry Air Force Base Hospital March 18, 1952. Two days prior to admission he first noticed fever and a sore throat. He was seen in the outpatient dispensary and treated with penicillin and gargles for an upper respiratory infection. The night prior to his admission he could not sleep and was quite restless. He had no dyspnea or orthopnea. On the morning of admission he had sudden onset of pain in the anterior portion of the right chest, with no shortness of breath. An examination and roentgenogram showed a 43% pneumothorax. The patient's temperature on admission was 98.8 F, his pulse rate was 96, and his blood pressure was 120/60 mm. Hg. Physical examination showed some retraction of the left intercostal spaces without mediastinal shift. Breath sounds were absent over the right lung field except the apex anteriorly; vocal fremitus was absent, and there was increased resonance over the right thorax. A no. 18 F. soft rubber catheter was inserted via trocar in the right third interspace midclavicular line under 2% procaine anesthesia, and waterseal drainage was instituted. A chest roentgenogram taken with a portable machine 24 hours later showed no reexpansion of the lung. Air bubbled freely from the intercostal tube when the patient coughed. Roentgenograms showed fluid on the right. There was also a considerable amount of subcutaneous emphysema. After 48 hours, it was decided to insert another catheter. At the time of insertion of the first catheter no additional perforations were made in the tube. The catheter was removed, and another properly prepared no. 18 F. catheter was inserted in the second interspace midclavicular line on the right. Penicillin, 600,000 units, and streptomycin, 0.5 gm. in 20 cc. of saline solution, were instilled in the pleural cavity. A roentgenogram taken six hours after the insertion of the second catheter showed further accumulation of fluid and no reexpansion of the lung. Continuous suction of 12 cm. of water was applied. The condition of the lung was verified by a portable chest roentgenogram taken the following morning. There was drainage of about 150 cc. of serosanguinous fluid from the intercostal catheter. The catheter was removed 48 hours after insertion. The patient was given ammonium chloride expectorant and penicillin. Films taken March 24, 1952, still showed some areas of atelectasis and pleural thickening, which cleared in several days. He was afebrile on March 23 and remained so throughout the remainder of his hospital stay. First and second strength purified protein derivative tests were negative, as were studies of gastric washings for acid-fast bacilli. The patient was returned to duty on April 7, 1952, after a hospital stay of 21 days.

Case 3.—A 40-year-old white man was admitted to the Lowry Air Force Base Hospital on May 12, 1953. He had been home on furlough in St. Joseph, Mo., on May 10, 1953, and had done a considerable amount of heavy work. He was awakened on the morning of May 11 by a sharp pain in his right chest, which was associated with shortness of breath. Shortly after the onset of pain he returned by train to Denver. The trip was difficult for him because of dyspnea. Upon arrival he was brought immediately to the hospital. An examination and chest roentgenogram revealed a 65% pneumothorax on the right. In 1949, while he was on duty at Fort Leavenworth, Kan., he had had a right pneumothorax. Four months passed before his lung completely reexpanded. Treatment was bed rest. In December, 1951, the patient was on duty in Germany. He was evaluated at that time for chronic pulmonary disease and had been given a bronchoscopic examination three times, once in England, once in Germany, and once at Lowry Air Force Base Hospital. Bronchograms done at Lowry Air Force Base showed no evidence of bronchiectasis. There was considerable evidence of bullous pulmonary emphysema. The patient was asymptomatic until the present admission. He was in marked respiratory distress with displacement of the trachea to the left. His admission temperature was 97.6 F, his pulse rate was 108, and his respiration rate was 26. An intercostal tube was immediately inserted in the second right interspace midclavicular line via trocar under 2% procaine local anesthesia. The catheter was attached to waterseal drainage. The patient had a vigorous cough, but there was clinical evidence of considerable bronchial secretion. The patient received sodium iodide, 1 gm. twice a day intravenously, to facilitate clearing of the bronchial tree. He received oxygen nasally and was given morphine to reduce pain. Air bubbled freely from the intercostal tube for a period of

15 to 20 minutes, and then there was evidence of the lung's reexpanding. A nasotracheal catheter was used to stimulate coughing.

The following day there was atelectasis of the right lower lobe of the lung. Since the patient had an effective cough and brought up copious amounts of thick, yellow, tenacious sputum, bronchoscopy was not done. He received penicillin, 300,000 units per day, and ammonium chloride expectorant mixture by mouth. A perivertebral block for relief of pain was attempted at the first and second thoracic vertebrae with lidocaine (Xylocaine) hydrochloride. This was only partially successful. After four days most of the atelectasis had cleared. Roentgenograms showed the recurrence of the pneumothorax in the right costophrenic angle. Thoracentesis was done in the eighth interspace midaxillary line, and 2,000 cc. of air was withdrawn by the needle without any change in intrapleural pressure, indicating a bronchopleural fistula. Therefore, a second no. 18 F. soft rubber catheter was inserted in the eighth interspace midaxillary line and was attached to the waterseal with suction regulated to 12 cm. of water. In 10 minutes there was evidence that the lung had reexpanded. A chest roentgenogram 24 hours later showed that the lung was expanded. Six days after insertion the anterior catheter was removed. Three days after insertion the axillary catheter was removed. Ten days after admission, as the patient returned from the mess hall, he was suddenly seized with shortness of breath. An examination showed rales over the right lung field, which were felt to be caused by pulmonary edema. The patient was afebrile during this time. The following morning symptoms were still present and were seen also in the lower half of the left lung field. Bed rest and aminophylline therapy brought the symptoms readily under control. One medical consultant felt that digoxin might be of value, and four doses were given. At the end of the patient's convalescence, a chest roentgenogram showed that the right lung was fully expanded. An electrocardiogram had showed no abnormality during the time of the pulmonary edema. The patient was referred to the Fitzsimons Army Hospital on July 1, 1953, for pulmonary function study. The study showed a moderate impairment of ventilatory function. The roentgenographic evidence of bullae on the left should prompt periodic rechecking of the patient. This case illustrates what can be accomplished by intercostal tube drainage and continuous suction in a patient with limited pulmonary functional reserve, in whom an open thoracotomy might be precarious.

CASE 4.—A 26-year-old white airman was admitted to the Lowry Air Force Base Hospital on Aug. 28, 1951, complaining of pain in the left side of the chest. On arising the morning of Aug. 27 he noted pain in the left scapular region, which was aggravated by deep breathing and movement of the left arm. Shortly after, the pain migrated to the left anterior portion of the chest and the pain in the posterior portion of the chest subsided. The anterior pain persisted for several hours and then disappeared completely. He felt well for about 12 hours, then the pain in the left anterior part of the chest reappeared and was more severe than it had been at the original onset. The pain was aggravated by breathing, and moderate dyspnea and orthopnea were present. The patient worked the night of Aug. 27 in spite of the pain. The next morning, however, he reported on sick call, where a chest roentgenogram was taken. The roentgenogram showed a left pneumothorax. The patient had felt well until the onset of the present symptoms. He had had a reenlistment chest film in March, 1950, which was normal. He had a 10 to 15 lb. (4.5 to 6.8 kg.) weight loss during the six months prior to the onset of his present illness. There was no history of malaise, fever, night sweats, cough, hemoptysis, or other symptoms related to the chest. His history and family history were noncontributory. His admission temperature was 99 F, his pulse rate was 100, and his blood pressure was 100/60 mm. Hg. The patient was well-developed, thin, markedly dyspneic, orthopneic, and cyanotic. He was in acute respiratory distress with the trachea displaced to the right of the midline. The left portion of the chest was more prominent than the right. The laboratory findings were: white blood cell count 12,000 with 82% neutrophils, red blood cell count 3,500,000, hemoglobin 10.5 gm. (colorimetric method), and a hematocrit of 37%. In the ward the patient was placed in an oxygen tent and was given 1 grain of codeine by hypodermic injection every four hours as needed for pain. Six hours after the patient's admission, a chest roentgenogram showed the fluid level at the level of the ninth rib posteriorly. He had had some relief of respiratory symptoms with the oxygen therapy. Surgical consultation was requested. A no. 18 F. soft rubber catheter was inserted via trocar in the left second interspace midclavicular line and was attached to waterseal drainage. A thoracentesis was also done at the same time in the ninth interspace posterior axillary line with removal of 1,000 cc. of blood. He received 500 cc. of blood and 1,000 cc. of 5% dextrose in distilled water. After the blood was aspirated and the catheter was inserted, the patient's condition improved quickly. In several hours breath sounds could be heard easily over the left portion of the chest. After 24 hours the patient had a temperature of 103 F. He had some difficulty in voiding and catheters had to be inserted on several occasions. Another thoracentesis was done, and only 10 cc. of thick dark blood was obtained at the eighth interspace posterior axillary line. The patient was given 600,000 units of penicillin daily. Within 48 hours his general condition had improved greatly. Breath sounds were present over the left portion of the chest, and chest roentgenograms showed the lung expanded with small amounts of fluid in the left costophrenic angle and in the region of the interlobar fissure. The patient's temperature continued to be about 103 F, so the antibiotic regimen was changed to chlortetracycline, 250 gm. given every six hours. The intercostal catheter was removed 38 hours after insertion. A solution of 1 million units of penicillin and 1 gm. of streptomycin in 20 cc. of saline solution was instilled into the pleural cavity via the catheter before its removal. A film taken the next day showed reexpansion of the lung with a small amount of fluid still remaining in the costophrenic angle on the left and in the interlobar fissure. The patient was given ammonium chloride expectorant. His condition remained constant at this point for five days. The antibiotic therapy was changed from chlortetracycline to oxytetracycline (Terramycin), 500 mg. every six hours. Physical examination then showed dulness to the level of about the ninth rib posteriorly with diminishing breath sounds. The temperature was 99.4 F, red blood cell count was 3,400,000, hemoglobin was 10.9 gm., white blood cell count was 10,000 with 79% neutrophils. The patient had received a total of 1,000 cc. of blood. A chest film was obtained, and it showed reaccumulation of fluid. A thoracentesis was done, and 1,000 cc. of dark fluid was obtained from the eighth interspace in the posterior axillary line. The red blood cell count the following day was reported as 4,000,000; hemoglobin was 12.95 gm. Another 500 cc. of blood was given. A chest film 24 hours later showed the lung to be expanded and almost clear of pleural fluid. Thoracentesis was done daily for five days with removal of small amounts of fluid. Penicillin and streptomycin solutions were instilled in the pleural cavity following removal of fluid. Fifteen days after the patient's admission, fluoroscopy showed areas of loculated fluid. The left leaf of the diaphragm appeared to move about one-half as much as the right leaf. The patient became afebrile and asymptomatic 19 days after admission. Routine cultures of all chest fluid showed no acid-fast or other bacilli. The second-strength purified protein derivative tuberculin test was strongly positive. On Oct. 8, 1951, the patient was discharged from the hospital for a 21 days' convalescent leave. He was asymptomatic on return. A chest film prior to discharge from the hospital showed only residual blunting of the left costophrenic angle. The patient was returned to military duty and has done well since.

The recovery of this patient might have been facilitated by the insertion of two intercostal catheters instead of one; the second tube would have been inserted in the midaxillary line in the eighth interspace. Two catheters would have evacuated the blood as well as the air from the pleural space more completely. This treatment would have restored cardiorespiratory physiology more rapidly, bringing visceral and parietal pleural surfaces into con-

tact and minimizing the likelihood of any further bleeding or production of serous fluid. Bleeding results from the tearing of an adhesion on contraction of the lung. Profuse bleeding could be anticipated, since a situation exists that is similar to a partially severed vessel's inability to retract to facilitate clotting. Reexpanding the involved lung quickly would make conditions favorable for spontaneous clotting. Cathether drainage can accomplish this more quickly and adequately than repeated thoracentesis. If persistent bleeding occurs because of the involvement of a vessel of large size, open thoracotomy must be done to control the hemorrhage.

COMMENT

Five (14%) of the 35 patients had had previous attacks of pneumothorax. One patient had six attacks within four years. The last three of these pneumothoraces occurred at Lowry Air Force Base Hospital, and after the last episode the patient consented to an open thoracotomy, which was done at Fitzsimons Army Hospital. At the time of surgery a wedge resection of the bullae of the right apex of the lung followed by talcum powder installation into the pleural cavity to produce pleural adhesions was performed. After his recovery from surgery he was returned to military duty. The second patient had had two previous collapses. The first followed a football injury to the chest. The second was spontaneous; it occurred 10 months later while he was at rest. Complete studies showed no pulmonary tuberculosis or other pathological conditions. The patient returned to duty. Three patients had had one previous pneumothorax. One stated his pneumothorax occurred while he was in cadet school at San Antonio, Texas. It occurred in an altitude chamber when he reached a simulated altitude of 18,000 ft. He had sudden respiratory distress. He was immediately taken to a lower altitude. The ascent was tried twice again. Each time he reached 18,000 ft. he developed marked distress. He was removed from the altitude chamber to the dispensary. An examination showed a pneumothorax. It was treated with bed rest only. He was asymptomatic until seven years later, when he was admitted to the Lowry Air Force Base Hospital because of a second pneumothorax.

Five of eight patients treated with the intercostal catheter drainage with waterseal alone had hospital stays of 21 days, 12 days, 8 days, 21 days, and 18 days, giving an average hospitalization of 16 days. Three patients in whom intercostal tube drainage was combined with continuous intrapleural suction had hospital stays of 9 days, 21 days, and 14 days, giving an average of 14 days of hospitalization. In contrast, there were six patients with over 25% pneumothorax, treated by bed rest alone for whom the hospital stay averaged 27 days. Bed rest is interpreted as the restriction of the patient to his bed except for the use of the bathroom. It is apparent that if intercostal tube drainage, plus continuous suction as indicated, had been used for these patients, they could have been restored to duty more quickly.

There is little question as to the proper choice of treatment for cases in which the pneumothorax is 10% or less. In such an instance, bed rest as defined above is the treatment of choice. Reexpansion can be expected in about eight days. In pneumothoraces in which the collapse is 30% or more, intercostal tube drainage with waterseal plus suction as indicated is the preferable method of expanding the lung. Treatment of such a patient with bed rest alone would take about 24 days for reexpansion of the lung. This leaves the intermediate group of cases over which there might be some dispute about the best method of treatment. Study of our cases leads us to the conclusion that any pneumothorax over 20% is better treated with intercostal tube drainage and a pneumothorax under 20% is better treated with bed rest alone. This dividing line is based on the index of reexpansion of 1.25% per day. An intercostal tube with waterseal drainage is instituted alone initially, since hemorrhage or serous effusion might be produced by continuous suction. The majority of patients has responded to the use of the tube with waterseal drainage. If there is not adequate reexpansion of the lung within a period of 36 to 48 hours, continuous intrapleural suction is added, starting with 10 to 12 cm. of water. In our three cases, 10 to 12 cm. of water of continuous suction has been adequate to reexpand the lung. No cardiac abnormalities have been produced by the negative pressure.

The technique of intercostal tube insertion is simple and can be carried out in any small hospital safely and effectively. The method is as follows: The anterior chest from the clavicle down to the fourth rib is shaved of hair, and an antiseptic agent is applied. A skin wheal is made with 2% procaine solution in the second intercostal space in the midclavicular line. Injection of procaine is carried into the intercostal musculature and the subpleural region. At the time of procaine infiltration the approximate thickness of the chest wall can be estimated. A small skin incision is made that will just accommodate the trocar. A trocar that will accommodate a no. 18 F catheter is passed obliquely through the intercostal space up and towards the shoulder just over the superior surface of the third rib to avoid injury to neurovascular structures. This is done so that the fistulous tract between the skin and pleural cavity will close by collapsing on itself after the removal of the catheter. The trocar is passed with a minimum amount of discomfort to the patient, providing adequate infiltration with procaine is done. Before the insertion of the catheter, multiple openings are made in the catheter along the distal 3 in. of the tube, which is the length of catheter left in the pleural space. These perforations are made after successively kinking the catheter at various lengths. A superficial mark proximal to the last perforation and equal to the estimated thickness of the chest wall is made on the catheter. This is the landmark for the suturing of the catheter into position. The catheter is inserted via the trocar after removal of the obturator. More than an adequate amount of the catheter is passed through the trocar, and the trocar is withdrawn over it. The catheter is withdrawn slowly so that the mark made previously will come to lie at the level of the skin. One then knows exactly how much of the catheter is in the pleural space. A no. 00 silk suture is placed at one end of the incision and tied around the catheter to anchor it into position. A second purse-string suture is placed; this is tied when the catheter is removed. Sterile dressings are applied around the catheter and taped into position with either adhesive tape or Elastoplast. The catheter

is attached to a waterseal trap for drainage, and the patient is encouraged to cough. A nasotracheal catheter is used if the patient is somewhat reticent about coughing vigorously. Sodium iodide solution is injected intravenously at the rate of 1 gm. twice daily to stimulate bronchial secretion. Compound opium and glycyrrhiza (Brown) mixture orally has also been used effectively. If, in 36 to 48 hours, reexpansion of the lung is not complete, suction is added. The catheter is left in place until there is no evidence of fluctuation or drainage for 24 to 36 hours. At the end of that time the suture anchoring the catheter in place is cut. During expiration the catheter is withdrawn and the purse-string suture is tied to approximate the position of the skin edges. It is preferable to use a straight ureteral catheter instead of the Foley catheter as done by Hughes [4] and Kreutzer,[5] since the Foley bag tends to hold the lung out from the chest wall. A straight ureteral catheter permits the lung to reexpand well up against the parietal pleura except in the immediate area of the catheter.

SUMMARY

Thirty-five cases of spontaneous pneumothorax were treated at the Lowry Air Force Base Hospital from Jan. 1, 1951, to July 31, 1953. A method of calculating the per cent pneumothorax provides an index of 1.25% reexpansion per day. Patients with less than 20% pneumothorax are satisfactorily treated with bed rest alone, and those with more than 20% pneumothorax should be treated by intercostal tube drainage. If reexpansion is not complete in 36 to 48 hours, continuous intrapleural suction is then added to facilitate reexpansion. A case of spontaneous hemopneumothorax was treated successfully by use of intercostal tube drainage. Multiple intercostal catheter drainage would have been a preferable method of treatment for this case.

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SKELETAL TRACTION IN TREATMENT OF INJURIES TO THE CERVICAL SPINE

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It has been almost 22 years since skeletal traction was first used by me to reduce a dislocation of the cervical spine.[1] Now it seems appropriate to evaluate this method of treatment and to comment on the evolution of certain principles in connection with its use that, when properly applied, eliminate the necessity for laminectomy, spinal fusion, and the use of plaster supports in almost all cases of injury to this part of the spine.

DEVELOPMENT OF PRESENT METHOD

From the beginning it was obvious that skeletal traction offered many advantages over methods of treatment previously used, but there were problems that only time and experience would solve. These advantages were quickly recognized by the profession; therefore, the use of skeletal traction in some form or other has become routine with most surgeons who treat injuries of the cervical spine. Early general acceptance of skeletal traction has made it possible to accumulate data from many sources, which altogether reflect experience for analysis from a large series of cases. It was soon learned that reduction of dislocations and the control of fractures would be relatively simple, but for several years a disturbing problem was the inability to maintain alignment after discontinuing traction. In many cases the final position of the vertebrae was not greatly, if any, improved over that before treatment. During that period it was customary to remove traction as soon as a support, usually a plaster jacket, could be applied after correction of the deformity. Now it is known that time for healing must be allowed before relying on supports, which alone are inadequate for the purpose of holding vertebrae in alignment.

After many trials and errors, the following plan of treatment was evolved; it has been successful in maintaining good alignment. After reduction is accomplished, light traction (5-7 lb.) is continued for 6 to 10 weeks, depending upon the location of the injury, and then an adjustable brace is applied if the patient is ambulatory. In most cases this is used for about three months. Patients with atlantoaxial dislocations are required to use a support for at least six months.

BASIS FOR TREATMENT

The success of this treatment is based on the concept that it is the healing of soft tissues, rather than bone, that is responsible for holding the vertebrae in correct alignment. Except in the facets that reunite slowly, if at all, there is no apposition of bone to favor early fusion unless there is marked loss of disk substance, which seldom occurs to that degree. When fusion of the vertebral bodies does occur, the process is too slow to account for the holding effect that comes within a few weeks.

Many anatomic structures are responsible for maintaining the alignment of the cervical spine, but the most important are the longitudinal ligaments, the intervertebral disks, the ligaments that form the capsules of the articulating facets, and the facets themselves. Of these there is good reason to believe that the function of the soft tissues is more important from the standpoint of holding the vertebral bodies in alignment. It is common practice to destroy the facets bilaterally whenever necessary to remove tumors from the spinal canal; usually no cervical support is applied in these cases, and there is no fear of dislocation. If, by reason of injury or disease process, the security of the spinal cord depended only on the locking effect of the articulating facets, it is obvious that external support would be needed. When there is dislocation of significant degree, and certainly when it

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1. Crutchfield, W. G.: Skeletal Traction for Dislocation of Cervical Spine: Report of Case, South. Surgeon **2**: 156 (June) 1933.

shows no tendency to correct itself, it must be assumed that, because of their relative inelasticity, the spinal ligaments have been either stretched or torn (fig. 1*A*). Moreover, the joint will remain unstable until these structures heal or regain their tone. It is impossible to determine accurately how much time is required for this process, but, on the basis of clinical experience, sufficient healing should take place in six weeks to maintain alignment after the application of a cervical support.

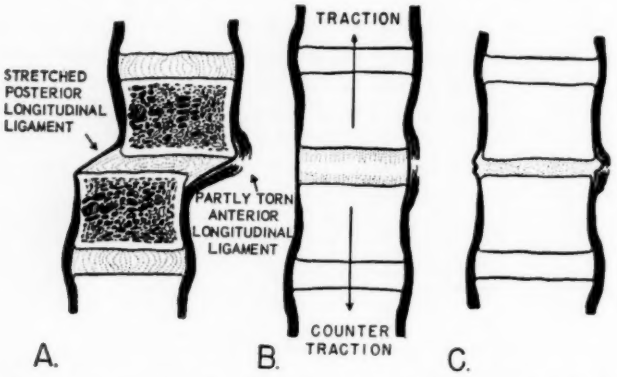

Fig. 1.—*A*, condition of soft tissues resulting from dislocation of vertebrae. *B*, wide interspace produced by a forceful pull against weakened ligaments. *C*, favorable position for healing of soft tissues.

TYPES OF TREATMENT

The simplest, safest, and most effective way to decompress and protect the spinal cord is to reestablish the normal alignment of the spine.

Surgery.—Cervical laminectomy is a serious operation for the critically ill patient, and it leaves much to be desired. It results in additional weakness of the spine, and it does not always relieve pressure on the spinal cord, especially in cases in which the anterior aspect of the spinal cord is held forward over the edge of the posteriorly displaced vertebra, even when the dentate ligaments are divided. Furthermore, it does not relieve pain and disability due to compression of spinal nerves at the site of injury. During the years that I have used skeletal traction, my experience with laminectomy has been limited to a few patients with long-standing displacement and fusion who gave a history of progressive loss of spinal cord function.

Halter Traction.—Halter traction will satisfactorily reduce many of the high dislocations, particularly those of the atlantoaxial variety, but, with only the light pull required, it is unpleasant and it causes irritation of the skin and pain in the temporomandibular joints if used continuously over a long period of time.

Traction Instruments.—Many instruments and techniques have been introduced for the purpose of applying traction to the skull. Perhaps, to some extent, this action may have been prompted by unfavorable experiences with the small skull tongs that were introduced here in 1935.[2] Due to an unfortunate error in construction, many of these instruments in use today are almost worthless. At the beginning of World War II the original manufacturer subcontracted the job of supplying the armed services, and somewhere along the line the design of the instrument was altered in a way that made it practically useless. When the error was detected, little could be done, as the service hospitals had already been stocked. The original instrument when open had a spread of 11 cm. from point to point, whereas many of the defective ones had a spread of less than 7 cm. Obviously this was a serious error, and it is surprising that these instruments could be fastened to any skull.

The success of treatment comes from the application of principles rather than from the use of any particular instrument. When handling sick patients, however, it is necessary to use an instrument that permits them to be turned to any position, and it is desirable to use one that can be easily and quickly applied. For these reasons, I still prefer the small tongs, and, since they have been used on several hundred patients here without a serious complication, I feel that they fulfill all traction requirements. In this treatment errors have been made, and now it seems in order to comment on the source of these errors. Failure of the instrument to hold has resulted from one or a combination of the following misuses: use of a faulty instrument, placing the drill holes too close together in the skull, insufficient penetration of the skull, or failure to keep the instrument tight. Most of the instruments being manufactured now have sufficient spread, and some have been improved in order to make them safe for prolonged application; these safety features include an improved pin and point that guard against complete penetration of the bone. In order to make certain of having a satisfactory instrument any surgeon contemplating the use of these skull tongs should measure the maximum distance from point to point. This should be 11 cm. and not less than 10 cm. It has been a common observation that many surgeons place the drill holes too close to-

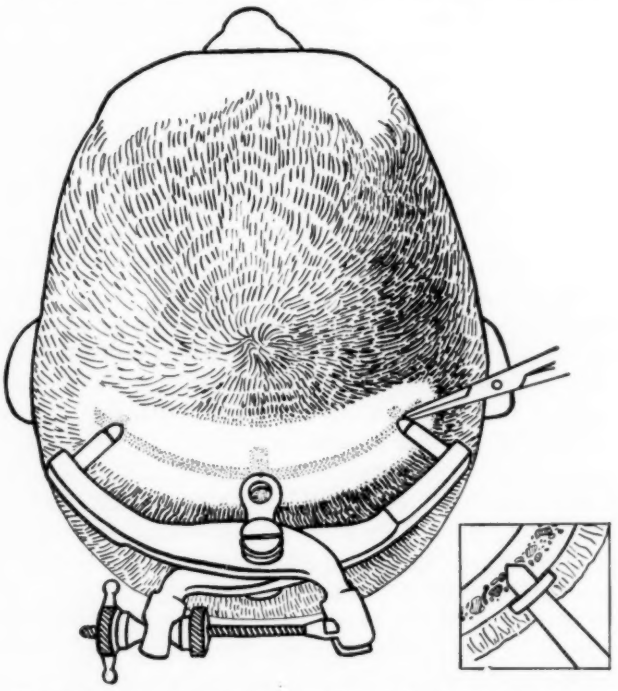

Fig. 2.—Procedure for correct application of the skull tongs developed by the author. Lines are painted on the scalp to indicate the midline of the skull and the approximate plane of the cervical articulations (through mastoid tips).

2. Crutchfield, W. G.: Further Observations on Treatment of Fracture Dislocations of Cervical Spine with Skeletal Traction, Surg., Gynec. & Obst. **63**: 513 (Oct.) 1936.

gether, and when this is done the points of the instrument cannot be forced to the depth of the drill holes; therefore, insufficient grasp is obtained and the instrument may be expected to slip out.

PROCEDURE

The technique for correct application is shown in figure 2. With the traction bar turned down and held against the midline, the points of the instrument are brought in contact with the scalp at the points where marks have been made to indicate the sites of insertion. Stab wounds are limited to the size of the drill guard (see inset) so that the pins will fit snugly and thereby control bleeding from the scalp. Using a point with a fixed guard, the skull is drilled to a depth of 4 mm. The points of the tongs are slipped into the drill holes and held there until the instrument is tightened and locked. There have been instances in which well-made tongs have slipped out after having been correctly placed in the skull. This has resulted from failure of the surgeon to force the drill point into the skull as far as the guard (4 mm.). After each hole is drilled its depth should be checked by slipping the drill point from the edge to the depth of the hole and observing the distance through which it passes. Unless this is done, particularly when using a dull point, an unsatisfactory application may result. Tongs have slipped out due solely to lack of attention. Instruments with the improved points have far less tendency to become loose, but they should be checked every two to three days and tightened only when necessary.

Improving Safety.—Complications arising from the use of this type of skull traction have been few. Only one of any consequence has been observed, and with use of the improved instrument this should be eliminated. The original tongs had sharp points that rested against the inner table only, and this led to early pressure necrosis with the result that the instrument would sometimes become very loose within a few days. In a few patients, particularly those with a thin skull, repeated tightening of the instrument over a long period of time resulted in complete penetration of the skull. This danger has been overcome by substituting pins with a much larger diameter than that of the drill point. Furthermore, the points of these pins have been redesigned so that most of their pressure rests against the outer table of the skull. With this larger contact area there is less pressure necrosis, and there is less tendency for the instrument to become loose.

Suggested Weights for the Treatment of Fractures and Dislocations at Various Levels in the Cervical Spine

Level	Minimum Weight, Lb.	Maximum Weight, Lb.
1st cervical vertebra	5	10
2nd	6	10-12
3rd	8	10-15
4th	10	15-20
5th	12	20-25
6th	15	20-30
7th	18	25-35

* These weights are used for correction of deformity only. A minimum weight (5-7 lb.) is used to maintain the corrected position.

Applying Traction.—Traction should be applied in the plane of the articulating facets (fig. 3*A*) in order to keep the cervical region straight and thereby eliminate an uneven pull on muscles and tendons that adds to the patient's discomfort. It is a common observation, however, that surgeons are inclined to apply traction too far forward on the skull (fig. 3*B*). This hyperextends the neck, and theoretically at least, it should increase rather than decrease the deformity, because in almost all cases of dislocation the upper segment of the spine is anterior to the lower segment. Application of traction posterior to the plane of the articulating facets should produce the best results, but it is seldom necessary and the flexed position of the neck that it causes is uncomfortable. The minimal corrective pull varies according to the level of injury and the position of the patient while in traction. Weights listed in the table are approximately correct for the various levels of the cervical spine when the head of the patient's bed is elevated for counter traction not more than about 20 degrees.

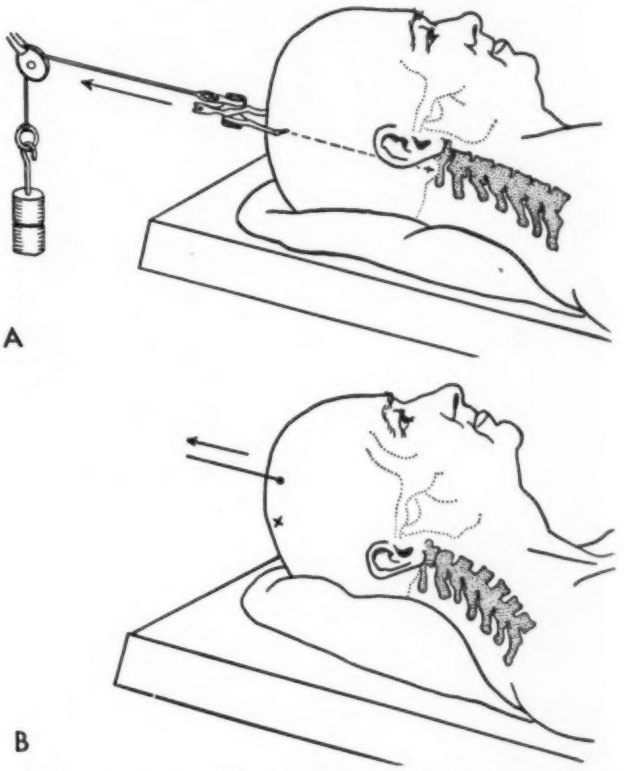

Fig. 3.—*A*, traction correctly applied in the plane of the articulating facets. *B*, ineffective traction applied in a plane anterior to that of the articulating facets, which may even increase the deformity in cases of anterior displacement of the upper segment.

Achieving and Maintaining Alignment.—The procedure to be outlined here is essentially the same as that that I have followed for more than 15 years, and, during this period and throughout experiences here with skeletal traction, there has been no evidence to indicate injury to the spinal cord resulting from treatment. No effort is made to bring about a rapid reduction. Force, sufficient to accomplish this, adds further injury to the soft tissues and probably endangers the spinal cord. A minimal corrective pull is applied that provides immediate protection for the spinal cord and begins the reduction, which may be complete within an hour. Ordinarily, the position is not checked until the following day. If, for any reason,

a very strong pull is used initially, a portable x-ray machine should be kept available so that lateral views of the cervical spine can be obtained every 15 minutes for at least one hour or until it can be shown that the force is not too strong. In some cases, the spinal ligaments are so badly torn that traction widens the intervertebral space to a serious degree (fig. 1*B*), which may result in injury to the spinal cord or cervical nerves. I have observed one patient who was temporarily injured in this manner. A unilateral upper arm paresis developed, due to overstretching of cervical nerves, which began to clear up within a matter of hours after traction was reduced. If the follow-up x-ray examination (usually the next day) does not show complete reduction, and there is no wide gap between the bodies of the affected vertebrae, additional weight is added gradually.

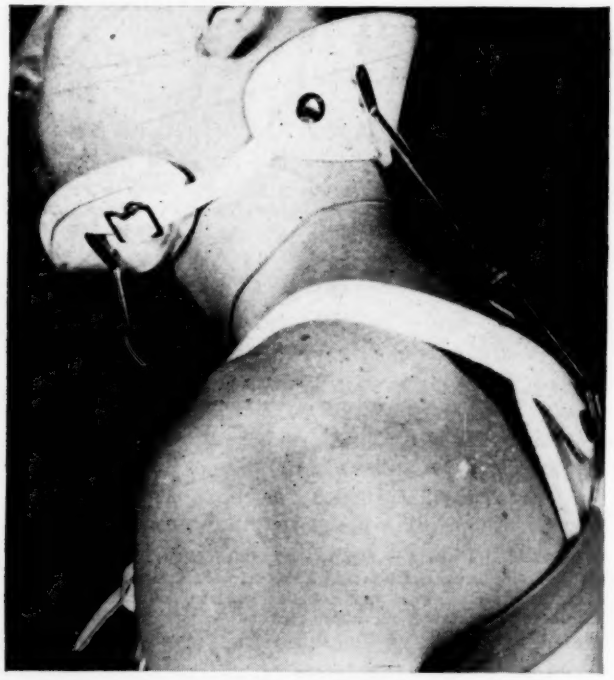

Fig. 4.—Lightweight (plastic) adjustable brace giving good support with minimum discomfort.

With few exceptions the minimal corrective pull is never more than doubled. After the vertebrae have been pulled sufficiently apart for them to slip back into position, no additional weight is added, even though some deformity is still present. The same pull, or even less, usually brings about complete or satisfactory reduction within a few days. As soon as satisfactory alignment has been obtained, the pull is reduced to a minimum for holding the corrected position (5 to 7 lb.). With the reduced pull, the upper segment descends to a normal position (fig. 1*C*) in which the spinal ligaments can heal and regain their tone. After about six weeks there is enough adhesion to prevent slipping, and then the patient is fitted with an adjustable brace (fig. 4) to be worn for three months or longer if indicated. An exception is made when dealing with high fractures and dislocations, particularly those of the atlantoaxial variety. Patients with these injuries are kept in light traction 10 to 12 weeks and are required to wear a support for at least six months.

COMMENT

When the spinal cord is severely injured at the level of the atlas or axis, it is probable that the patient dies immediately or at least before a clinical diagnosis can be made. Therefore, patients with compression fractures or dislocations high in the cervical spine show little, if any, evidence of spinal cord injury. Having the responsibility of a patient who has barely escaped a tragic end and whose injury is such that improper or inadequate treatment could result in sudden death, the attending surgeon is faced with a serious problem. I have no quarrel with those who believe that these patients should be treated by means of spinal fusion. In fact, my associate, aided by members of the department of orthopedic surgery, has operated on five of our patients. Good results were obtained, but on the other hand equally satisfactory results were obtained in a much larger series of cases treated conservatively. Moreover, throughout my experience with injuries of this type, which includes a period when treatment consisted only of applying a plaster support, no untoward effects from conservative treatment have been observed. Now that better methods of handling these patients are available, there seems to be less reason than ever for resorting to spinal fusion operations, which are by no means free of risk. The patient who has a satisfactory fusion operation may be able to discard his brace a little sooner than the one treated conservatively, but this is of minor importance when compared with the disadvantages of the major surgical procedure.

Compression fractures of the atlas and axis are more responsive to conservative treatment than are dislocations at these levels. They tend to remain in a satisfactory position and hence require a shorter period of traction, whereas dislocations are more apt to be accompanied by greater injury to the spinal ligaments that permits the vertebrae to slip out of alignment unless traction is maintained for a longer period. Injuries at this high level require very little traction, and the patients are comfortable except for their enforced bed rest. It has been our policy to continue traction for 8 to 12 weeks depending on the type and severity of the injury and then to rely on a light adjustable brace. Some patients are allowed to discard the brace after three months. Others are required to use it for six months or longer, depending on individual circumstances.

SUMMARY

When properly applied, skeletal traction is the safest, most effective, and simplest method of treating patients with acute injuries of the cervical spine. Furthermore, when used to its full advantage it leaves few, if any, indications for laminectomy, spinal fusion, or plaster supports.

Chair Treatment of Coronary Thrombosis.—In six patients the cardiac work was determined in the resting recumbent position and again with the patient in an armchair. In each patient the calculated cardiac work was less in the armchair posture. The mean reduction in the work of the heart amounted to 23%. This gives support to the . . . observations . . . that patients with acute coronary thrombosis are often benefited by the "chair treatment."—W. S. Coe, M.D., Cardiac Work and the Chair Treatment of Acute Coronary Thrombosis, *Annals of Internal Medicine,* January, 1954.

CLINICAL NOTES

LIPID PNEUMONIA FOLLOWING OCCUPATIONAL EXPOSURE TO OIL SPRAY

Richard B. Foe, M.D., Madison, Wis.
and
Roy S. Bigham Jr., M.D., Rantoul, Ill.

Pneumonitis due to aspiration of oil is a form of pulmonary consolidation that has been recognized for many years.[1] Most of the cases described were attributable to the medicinal use of mineral oil and cod liver oil, but cases of lipid pneumonia have been caused by the accidental aspiration of kerosene, diesel oil, and gasoline. Infancy, debilitation, old age, and diseases affecting deglutition have been the most commonly associated factors. The following case report is made to point out the industrial hazards of oil spraying as a cause of lipid pneumonia.

REPORT OF A CASE

A 30-year-old white aircraft mechanic was admitted to Chanute Air Force Base Hospital on Feb. 19, 1952. His chief complaints were loss of vitality, shortness of breath on exertion, and frequent chest colds for the past year. Chest roentgenograms in 1946, 1948, and February, 1951, were reported as normal. A systemic review and the medical history were

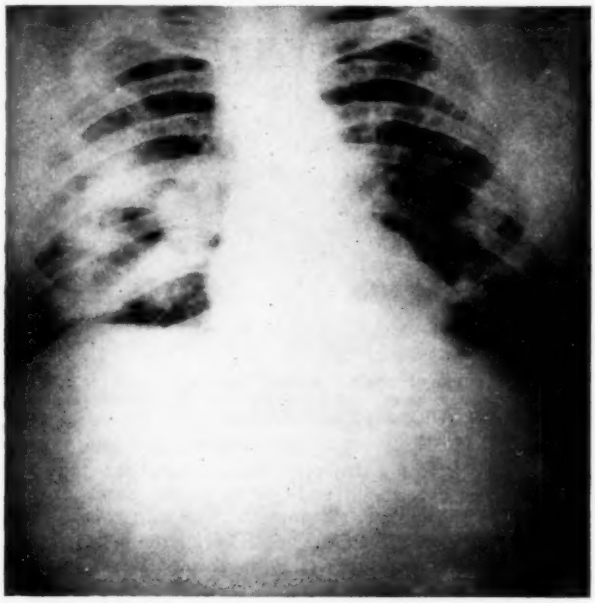

Fig. 1.—Roentgenogram of patient in case reported, on initial admission to hospital. Shadows are seen throughout the lung fields.

normal. Results of physical examination were essentially normal. Hemoglobin, red blood cell counts, white blood cell counts, and differential counts were within normal limits, as were skin bleeding time, coagulation time, sedimentation rates, platelet counts, and total eosinophil count. A chest roentgenogram (fig. 1) showed ill-defined shadows of increased density scattered throughout both lung fields. The shadows were oval; some were homogeneous, and others were of a confluent mottled nature. The urinalysis, serologic studies, electrocardiogram, sputum cultures, and prothrombin time were normal. First and second strength (0.00002 and 0.005 mg.) purified protein derivative, histoplasmin, and coccidioidin skin tests were negative. Cardiac fluoroscopy, skull and long bone films, and bronchograms showed no abnormality. Bone marrow aspiration was normal except for a moderate preponderance of eosinophilic

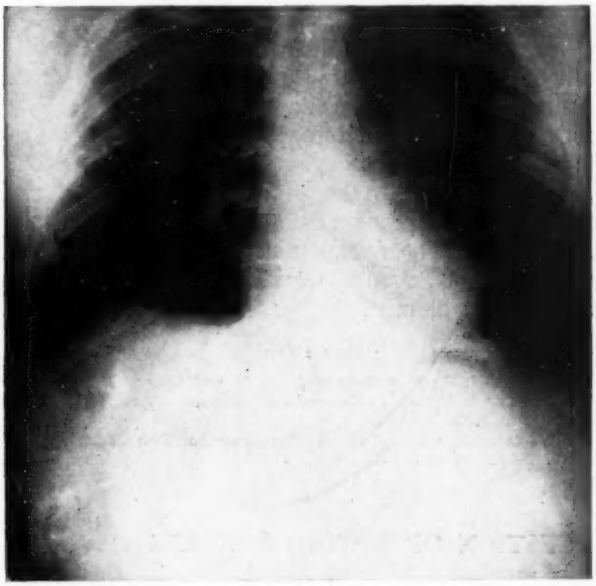

Fig. 2.—Roentgenogram of patient in case reported, six months after initial admission to hospital. The lung fields are nearly clear.

metamyelocytes. Bronchoscopic examination showed no abnormalities, and cytological and cultural studies of bronchial secretions were normal. On April 8, 1952, a lung biopsy was performed. Grossly, there was an irregular diffuse firmness of the right upper lobe. Microscopic examination showed a marked organizing pneumonia with numerous vacuolated lipid areas varying greatly in size. The lipid areas were both extra-alveolar and intra-alveolar. At the periphery of the oil droplets and in the interstitial tissue there were numerous eosinophils, plasma cells, lymphocytes, and proliferating macrophages. Microscopic sections of the tissue examined by the Armed Forces Institute of Pathology were interpreted as showing lipid pneumonia.

The patient had denied ever using oily nose drops or mineral oil but on further questioning stated that for the last one and one-half years he had used a spray in cleaning aircraft engines. The mixture used was one-half kerosene and one-half a cleansing agent composed of 50% vegetable oil soap. The work was done in a closed hangar and the solution sprayed on the engines, causing a heavy mist to remain in the air for hours.

The patient was returned to duty after three months of hospitalization. There had been no change in the roentgenologic studies, but there had been considerable subjective improvement. He returned for a follow-up examination six months after the initial admisison and reported that there had been a steady improvement in his condition until he felt completely well. Physical examination was again normal, as were the hemogram, urinalysis, and serologic studies. Vital capacity was 93% (Scott-McKesson). Repeated chest roentgenograms (fig. 2) showed only minute amounts of iodized oil (Lipiodol) in the right upper lobe laterally, and the multiple densities previously described had completely resolved.

COMMENT

In 1950, Shoshkes and associates studied the fate of inhaled aerosols in mice.[2] The inhalation of liquid petrolatum and motor oil droplets resulted in localized foreign

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1. Laughlen, G. F.: Pneumonia Following Naso-Pharyngeal Injections of Oil, Am. J. Path. **1**: 407 (July) 1925.

2. Shoshkes, M.; Banfield, W. G., and Rosenbaum, J. S.: Distribution, Effect and Fate of Oil Aerosol Particles Retained in Lungs of Mice, Arch. Indust. Hyg. **1**: 20 (Jan.) 1950.

body reactions of moderate severity as well as patches of lipid pneumonia. Vegetable oils gave less striking changes, presumably because of the susceptibility of these oils to phagocytosis and enzymatic destruction. The pneumonitic process in lipid pneumonia usually remains stationary, and the resolution noted in this case is probably explained by the absorption of the vegetable oil. What was believed to be the first case on record of lipid pneumonia due to occupational exposure was reported by Proudfit in 1950.[3] The patient had chronic pulmonary symptoms after prolonged use of a mineral oil spray used in cleaning cash registers. In 1951, Weissman [4] reported a second case of lipid pneumonia following exposure to nebulized industrial oil over a period of several years. For correct diagnosis a detailed occupational history and examination for oil droplets in the sputum are of primary importance. There is no known therapy, and the best treatment is prevention. Proper ventilation should be provided, and masks should be worn by workers exposed to heavy concentrations of oil mist.

1300 University Ave. (Dr. Foe).

3. Proudfit, J. P.; Van Ordstrand, H. S., and Miller, C. W.: Chronic Lipid Pneumonia Following Occupational Exposure, Arch. Indust. Hyg. **1**: 105 (Jan.) 1950.

4. Weissman, H.: Lipoid Pneumonia: Report of Two Cases, Am. Rev. Tuberc. **64**: 572 (Nov.) 1951.

INGESTION OF SEWING NEEDLES

REPORT OF A CASE

Clarence Lee Miller, M.D., Washington, D. C.

The ingestion of many different foreign bodies has been reported time and again. The patient reported on here swallowed more than 18 sewing needles during a period of at least 14 years.

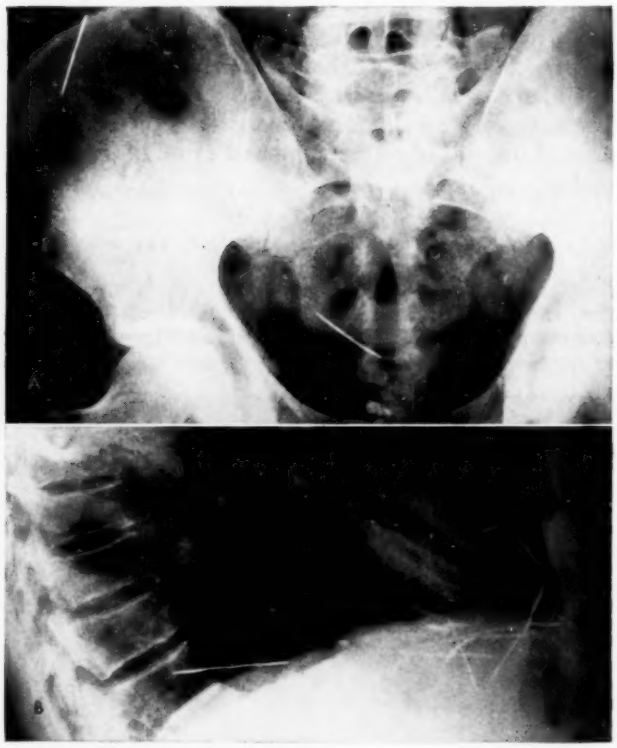
A 73-year-old white man had been hospitalized in the past on several occasions, beginning Aug. 8, 1938. Diagnoses made in the past included hiatus hernia, arteriosclerosis, and upper respiratory infections. His most recent hospitalization was from Jan. 19 to Jan. 26, 1953, when he complained of chronic gastric distress with increasing burning in the epigastric region, not particularly related to meals but aggravated by the intake of food. This pain did not radiate. He also complained of marked weakness, and his barracks mates noted that his behavior was rather odd. He had been falling down frequently and acting in a peculiar manner. The patient stated that he was falling frequently, but that he did not lose consciousness at any time. Aside from these complaints, the systemic review revealed nothing unusual.

Physical examination on admission disclosed a poorly developed, poorly nourished, white, elderly man who appeared to be chronically ill. Physical examination revealed bilateral lenticular opacity, bilateral inspiratory fine rales at both lung bases, mild epigastric tenderness, and a trace of pitting edema of the leg. The blood pressure was 110/70 mm. Hg; the pulse was 90 per minute and regular; the respiratory rate was 16 per minute; the temperature was normal. The patient was not well oriented as to time or current events and seemed to be agitated and depressed.

While in the hospital, the patient was given a bland diet and antispasmodics, antacids, and mild sedation. He did not respond well to this therapy but continued to complain of weakness, anorexia, and epigastric distress; he frequently burst into tears. He kept very much to himself during his hospitalization. On the evening of Feb. 18, 1953, the patient complained of severe epigastric distress. Complete physical examination at this time confirmed the previous findings, with the addition of a slight increase in the amount of epigastric tenderness. The patient was given mild sedation and rested quietly during the night. The next morning he refused his breakfast, had two loose bowel movements, and went to bed. At 9:23 a. m., on Feb. 19, 1953, the patient was found dead in bed.

Routine x-ray examinations since first admission in 1938 revealed 20 or more metallic foreign bodies scattered throughout the chest, diaphragmatic regions, and pelvis (see figure). Electrocardiograms over the years showed nothing of significance. Reaction to the Wassermann test was negative, and other laboratory work was not particularly significant.

At autopsy, a massive pulmonary embolus was found in the right ventricle and pulmonary artery, which accounts for the man's sudden death. Also noted was a thrombus in the right femoral vein, part of which probably produced the pulmonary embolism. There were, in addition to hiatus hernia, chronic ulcers of the esophagus and stomach, pyelonephritis, purulent prostatitis, and about 20 sewing needles scattered throughout the body. The needles were covered with rust and surrounded by a large amount of dense fibrous tissue. There were no eyes in any of the needles; all had rusted out. The needles were located as follows: one in the left side of the chest wall between the ribs and the subcutaneous tissue, one in the left lower lobe of the lungs, about 10 in the parietal pericardium and diaphragm, about 6 in the left lobe of the liver (these did not show on films), and a few in the colon in the region of the cecum and the rectum near the prostate. These needles were apparently ingested during the years this man worked as an upholsterer and furniture maker.



A, roentgenogram of pelvis revealing two needles, one embedded in rectum near prostate gland; and *B*, lateral view of chest showing needles in the chest wall, pericardium, and diaphragm.

This man was questioned on numerous occasions, and he never had any symptoms traced to the needles. It seems that some symptoms would have been noticed. Apparently, the hiatus hernia held the swallowed needles, which subsequently passed through the wall of the stomach.

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From the U. S. Soldiers Home Hospital.

DIAGNOSTIC PROBLEMS

PRESENTATION OF CASE

Edwin F. Hirsch, M.D., Chicago

A 41-year-old white man, a meat salesman, first entered St. Luke's Hospital in March, 1952, because of shortness of breath of one year's duration. The heart was found to be enlarged to the left, with systolic and diastolic murmurs at the aortic area. He was known to have had hypertension for about 20 years, with a blood pressure of around 170/80 mm. Hg. There was no history of kidney disease, rheumatic fever, scarlet fever, or venereal diseases. He stayed in the hospital for six days and was discharged improved. For three to four months prior to the present admission on Oct. 24, 1952, he was taking a total of 0.4 mg. of digitoxin in tablets daily. Dyspnea became more marked with increasing generalized edema.

Physical Examination.—The blood pressure on admission was 190/100 mm. Hg. The temperature was 97 F, pulse 140, and respirations 28 per minute. The patient was cyanotic, dyspneic, orthopneic, and had 4+ pitting edema of the lower extremities and the scrotum. The scleras were icteric. The neck veins were markedly distended. The lungs were free of rales, and there was only a minimal dulness at their bases, with diminished resonance and fremitus, more on the right side. There was a pronounced diastolic murmur along his left sternal border, with maximum intensity at his third left intercostal space. The liver was enlarged to three or four fingerbreadths below the costal margin. The femoral pulse could not be felt.

Laboratory Findings.—The blood had 5,340,000 red blood cells per cubic millimeter, with 15.1 gm. of hemoglobin per 100 cc. and 14,400 white blood cells per cubic millimeter, with 83 per cent neutrophils. The blood urea nitrogen was 24.7 mg. per 100 cc. The nonprotein nitrogen was 60 mg. per 100 cc., and the creatinine 2.7 mg. per 100 cc., the total protein 6.23 gm. per 100 cc., with 2.72 gm. of albumin and 3.51 gm. of globulin. The sedimentation rate was 8 mm. after one hour. The quantitative bilirubin test revealed a total of 5.5 mg. per 100 cc., 2.5 direct and 3 indirect. The urine contained 400 mg. per 100 cc. of albumin, otherwise there were no significant changes. An electrocardiogram on the day of admission revealed nodal tachycardia with frequent ectopic ventricular systoles and left axis deviation. Another tracing on the sixth hospital day showed auricular flutter with a varying degree of block.

Course.—The patient was kept under an oxygen tent and was on a salt-poor cardiac diet. He was given 750 mg. of procaine amide (Pronestyl) intravenously. There was no change in his condition except for a drop in blood pressure of about 40 mm. Hg after the drug was given. He was also given mercaptomerin (Thiomerin), aminophylline, and alkaloids of opium (Pantopon). His general condition remained poor. On Oct. 31, 1952, while a nurse's aid was feeding him, he complained of difficulty in swallowing. Coma developed within minutes, and the patient gasped for breath. Death occurred shortly after.

ANATOMIC DIAGNOSIS

Coarctation with marked constriction of the lumen of the isthmus of the aorta; bicuspid aortic valve of the heart; chronic fibrous endocarditis of the mitral valve of the heart; marked dilatation of the chambers and hypertrophy of the myocardium of the heart; marked dilatation of the pulmonary, left and right third intercostal, left and right internal mammary, and splenic arteries and of the jugular and the retroperitoneal veins; and anasarca.

The edematous body of this man weighed 180 lb. (81.6 kg.) and was 172 cm. long. The internal mammary

Fig. 1.—Coarctation of the aorta and marked dilatation of the intercostal arteries.

arteries were markedly dilated, tortuous, ranged to 8 mm. in diameter and were continuous as a tortuous vessel along the costal arch on each side. The peritoneum contained 300 cc., the right pleural space 500 cc., and the left pleural space 1,500 cc. of a clear yellow fluid. The intercostal arteries were dilated; the third on each side had an outside diameter of 8 mm. The others also were dilated but smaller. At the isthmus the lumen of the aorta (fig. 1) was reduced abruptly to a diameter of 2 mm. This stenosis extended only a few millimeters. The inside circumference of the aorta just above the constriction was 4 cm.; just below, 6.5 cm.; and at the level of the diaphragm 3.7 cm. The lining of the aorta had slight fatty changes. The pulmonic end of the ductus arteriosus was a small dimple, but a probe introduced with little pressure extended to the aortic stricture. No appreciable amount

of blood could circulate through this channel. The huge heart (fig. 2) weighed 860 gm., and much of its volume consisted of left ventricle. The aortic valve was bicuspid

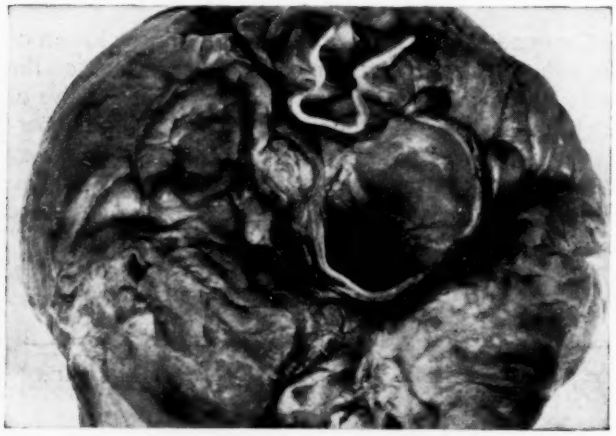

Fig. 2.—Bicuspid aortic valve.

(fig. 3), and there was a fusion of the commissure between the right and the left cusps. The posterior cusp equaled in size the fused right and left cusps. The myocardium was markedly hypertrophied. The other valves had no significant changes. The lungs, kidneys, liver, and spleen showed the changes of chronic passive hyperemia.

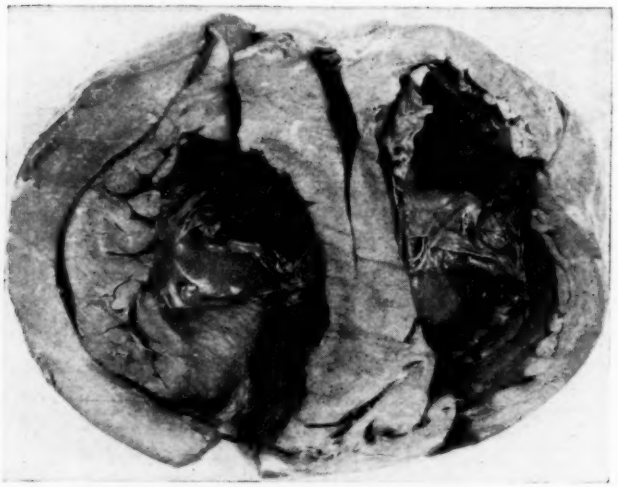

Fig. 3.—Marked hypertrophy of the myocardium (viewed from below).

COMMENT

Gilbert H. Marquardt, M.D., Chicago

This patient lived a little longer than the 32-year average for one suffering from aortic coarctation. He died of cardiac failure secondary to the long-standing hypertension. The other common causes of death in coarctation are cerebral thrombosis or hemorrhage, bacterial endocarditis at the site of narrowing, or aortic rupture. This congenital lesion is of greater interest now to the clinician because of its susceptibility to surgical correction even when discovered in the third or fourth decade. The degree of coarctation may vary from very slight to extreme constriction. The clinical signs may be absent or striking according to the degree to which the collateral vessels are forced to enlarge to compensate for the constriction. Although hypertension may not be present in the upper extremities, it usually is a leading sign. The pulses in the lower extremities will be found to be very weak and the blood pressure diminished. Other suggestive and diagnostic signs are: 1. Arterial pulsations seen and felt in the interscapular area, above and below the clavicles, and occasionally in the anterior abdominal wall. 2. Murmurs, usually systolic, heard over the precordium and back. They may vary in intensity or even be absent. A diastolic murmur at the left of the sternum at the base suggests the coexistence of a patent ductus arteriosus. Occasionally murmurs are heard over the dilated interscapular vessels. 3. Roentgenograms revealing cardiac enlargement, a smaller than normal aortic knob, and erosion of the posterolateral ribs. The latter sign is pathognomonic. Angiocardiography will give further information regarding the exact site and degree of the aortic constriction. A further study by cardiac catheterization may be helpful to the surgeon in pointing out other existing anomalies.

The bicuspid aortic valves as found in this patient is the commonest coexisting anomaly. A recent article (Gross, R. E.: Coarctation of the Aorta, *Circulation* **7**:757-768 [May] 1953) reviews the indications and contraindications for surgical repair of coarctation.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products containing non-nutritive artificial sweeteners intended for use in low carbohydrate, low sodium, and other therapeutic diets have been accepted as conforming to the rules of the Council. Data regarding composition represent the best available information, which is based on submitted reports of analyses. The Council has requested continuing analytical studies, especially of the sodium content of products intended for use in low sodium diets, because of the natural variations in the composition of processed foods.

JAMES R. WILSON, M.D., *Secretary.*

Monarch Finer Foods Division, Consolidated Grocers Corporation, Chicago.

Monarch Brand Diet Dessert Dietetic Pack Fruits for Salad.

Ingredients: Apricots, peaches, pears, maraschino type cherries, and pineapple, packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 10%, fat (ether extract) 0.2%, protein (N × 6.25) 0.8%, ash (minerals) 0.2%, sodium 4.6 mg./100 gm., and cyclamate calcium 0.35%.

Calories.—0.45 per gram; 12.8 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Grapefruit Segments.

Ingredients: Grapefruit packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 7%, fat (ether extract) 0.7%, protein (N × 6.25) 0.6%, ash (minerals) 0.4%, sodium 8.6 mg./100 gm., and cyclamate calcium 0.25%.

Calories.—0.35 per gram; 9.9 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Peaches, Elberta Freestone, Sliced.

Ingredients: Elberta Freestone peaches packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6%, fat (ether extract) 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, sodium 2.1 mg./100 gm., and cyclamate calcium 0.33%.

Calories.—0.28 per gram; 7.9 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Peaches, Yellow Cling (Sliced or Halves).

Ingredients: Peaches packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6%, fat (ether extract) 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, sodium 3.7 mg./100 gm., and cyclamate calcium 0.33%.

Calories.—0.28 per gram; 7.9 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Bartlett Pears, Sliced or Halves.

Ingredients: Pears packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9%, fat (ether extract) 0.3%, protein (N × 6.25) 0.2%, ash (minerals) 0.2%, sodium 7.5 mg./100 gm., and cyclamate calcium 0.30%.

Calories.—0.40 per gram; 11.3 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Prune Plums.

Ingredients: Prune plums packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 12%, fat (ether extract) 0.2%, protein (N × 6.25) 0.7%, ash (minerals) 0.4%, sodium 0.35 mg./100 gm., and cyclamate calcium 0.2%.

Calories.—0.54 per gram; 15.3 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Black Raspberries.

Ingredients: Black raspberries packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9%, fat (ether extract) 1%, protein (N × 6.25) 1.1%, ash (minerals) 0.4%, sodium 0.44 mg./100 gm., and cyclamate calcium 0.35%.

Calories.—0.50 per gram; 14.2 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Monarch Brand Diet Dessert Dietetic Pack Red Raspberries.

Ingredients: Red raspberries packed in water with the addition of cyclamate calcium (Sucaryl Calcium).

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 8%, fat (ether extract) 0.7%, protein (N × 6.25) 0.6%, ash (minerals) 0.3%, sodium 0.3 mg./100 gm., and cyclamate calcium 0.35%.

Calories.—0.42 per gram; 12 per ounce.

Use.—For use in low sodium, low calory, and other therapeutic diets.

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Aslesen Company, Minneapolis.

Banquet Table Brand Dietetic Pack Kadota Figs.

Ingredients: Kadota figs packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 12.6%, moisture 87.4%, ash 0.4%, fat (ether extract) 0.1%, protein (N × 6.25) 0.5%, crude fiber 0.8%, carbohydrates (by difference) 10.8%, and sodium 2.81 mg./100 gm.

Calories.—0.46 per gram; 13 per ounce.

Use.—In low calory, low sodium, and other therapeutic diets.

Banquet Table Brand Dietetic Pack Fruit Cocktail.

Ingredients: Pears, peaches, pineapple, grapes, and maraschino type cherries, packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 11%, moisture 89%, ash 0.3%, fat (ether extract) 0.1%, protein (N × 6.25) 0.4%, crude fiber 0.4%, carbohydrates (by difference) 9.8%, and sodium 2.53 mg./100 gm.

Calories.—0.42 per gram; 11.9 per ounce.

Use.—In low calory, low sodium, and other therapeutic diets.

Banquet Table Brand Dietetic Pack Thompson Seedless Grapes.

Ingredients: Thompson seedless grapes packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 15.2%, moisture 84.8%, ash 0.4%, fat (ether extract) trace, protein (N × 6.25) 0.5%, crude fiber 0.2%, other carbohydrates (by difference) 1.2%, total sugars (as invert) 12.9%, acidity (as tartaric acid) 0.3%, and sodium 1.89 mg./100 gm.

Calories.—0.58 per gram; 16.25 per ounce.

Use.—In low calory, low sodium, and other therapeutic diets.

Banquet Table Brand Dietetic Pack Peaches, Yellow Cling, Sliced and Halves.

Ingredients: Peaches packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 8.1%, moisture 91.9%, ash 0.3%, fat (ether extract) 0.1%, protein (N × 6.25) 0.4%, crude fiber 0.3%, carbohydrates (by difference, 7%, and sodium 4.26 mg./100 gm.

Calories.—0.31 per gram; 8.8 per ounce.

Use.—In low calory, low sodium, and other therapeutic diets.

Banquet Table Brand Dietetic Pack Pears, Bartlett Halves.

Ingredients: Bartlett pears packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Total solids 8.8%, moisture 91.1%, ash 0.2%, fat (ether extract) 0.1%, protein (N × 6.25) 0.2%, crude fiber 0.6%, carbohydrates (by difference) 7.8%, and sodium 3.45 mg./100 gm.

Calories.—0.33 per gram; 9.4 per ounce.

Use.—In low calory, low sodium, and other therapeutic diets.

Banquet Table Brand Dietetic Pack All Green Asparagus.

Ingredients: Mammoth and large spears variety asparagus, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 6%, moisture 94%, ash 0.5%, fat 0.1%, protein (N × 6.25) 2.2%, crude fiber 0.4%, other carbohydrates (by difference) 1.3%, total sugars (as invert) 1.5%, and sodium 7.66 mg./100 gm.

Calories.—0.21 per gram; 6.1 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

Banquet Table Brand Dietetic Pack Spinach.

Ingredients: California variety spinach, packed in water without any added salt.

Analysis (submitted by distributor).—Total solids 7.1%, moisture 92.9%, ash 0.8%, fat 0.2%, protein (N × 6.25) 2.4%, crude fiber 0.7%, other carbohydrates (by difference) 2.2%, total sugars (as invert) 0.8%, and sodium 33.76 mg./100 gm.

Calories.—0.23 per gram; 6.8 per ounce.

Use.—In low sodium, low calory, and other therapeutic diets.

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LEUKEMIA

In a timely review of the current status of the treatment of leukemia, Dameshek,[1] while admitting that much remains to be done, sounds a note of encouragement. He believes that, instead of an empirical trial of every new drug that appears, a systematic search for a remedy based on more accurate knowledge of the chemistry and physiology of the white blood cells and the organs that produce them is in order. Leukemia is a proliferation of tissue cells rather than of white blood cells. The blood may or may not reflect what is happening in the tissues; hence the paradoxical designation of some cases as aleukemic leukemia. The histopathological findings are the same in the leukemic and the aleukemic type. Dameshek makes a plea for naming the four classes of leukemia according to the predominating cell type: granulocytic leukemia instead of myelogenous; lymphocytic instead of lymphatic; monocytic as currently used; and plasmocytic instead of multiple myeloma. The most rapidly growing and most invasive granulocytic or lymphocytic lesions are composed almost entirely of primitive cells with little tendency to differentiation but with many mitotic figures. The slowly growing lesions are not so invasive and are made up largely of mature cells with few, if any, mitotic figures.

The incidence of leukemia has increased from 1 per 100,000 population in 1900 to 4.3 in 1944. Increasing awareness and better diagnosis could account for the increase noted up to 1939, but it is doubtful that the continued increase since then could be accounted for in this way. The fact that the incidence is eight times as great in radiologists as in other physicians suggests that irradiation may be a cause. This conclusion is supported by the fact that the incidence of leukemia among survivors of a single high exposure to radiation in Hiroshima and Nagasaki is about 13 times as great as in survivors whose exposure was minimal. Exposure to benzene and the carcinogenic hydrocarbons may cause leukemia, but the evidence is not conclusive. The high incidence of leukemia observed in a certain strain of mice may be hereditary, but there is equally good evidence that it is due to intrauterine viral transmission. Hormonal abnormalities may play a causative role in the disease, but no conclusive evidence has yet been produced.

Although radiotherapy is used, the results in most cases are unsatisfactory and irradiation may even aggravate the disease. Nitrogen mustard has been used, but although it is often beneficial to patients with lymphosarcoma, it does not help those with leukemia. Urethan is useful in maintaining x-ray-induced remissions in patients with granulocytic or plasmocytic leukemia. Aminopterin (4-aminopteroylglutamic acid), the amino acid analogue of folic acid, is especially useful in treating children and young adults with acute leukemia. Unfortunately, it is of little or no value in patients over 30 years old. In about 50% of younger patients, however, the remission although temporary is complete clinically and hematologically. When Aminopterin is given with large doses of corticotropin the results are even better. With each successive relapse, however, treatment becomes more difficult. The bone marrow of patients undergoing this form of treatment must be examined from time to time because unless treatment continues until the marrow is almost entirely cleared of primitive abnormal cells relapse occurs rapidly.

The advantages of using the combined treatment are that the corticotropin (1) enhances the effect of the Aminopterin, (2) increases the chance of complete remission, (3) reduces toxic reactions to the Aminopterin, (4) decreases tendency to bleed, and (5) produces myelostimulation when bone marrow aplasia has been induced by Aminopterin. Maintenance doses of both drugs should be given during remissions. Another promising drug is triethylene melamine, which is of value in treating patients with lymphosarcoma, chronic lymphocytic leukemia, and chronic granulocytic leukemia. Complete clinical and hematological remissions have been observed in 60% of patients treated with this drug. If maintenance doses are given the remissions are greatly prolonged.

These studies indicate that the disease, if not curable, may at least be controllable and in time it is to be hoped that it will be as controllable as diabetes. It is also apparent that chemotherapeutic agents have a certain degree of specificity for certain types of leukemia. It now remains for the researchers in basic science further to examine the cultural, chemical, and enzymatic characteristics of normal and leukemic cells and for the practicing physician to study more closely the family histories of patients with leukemia and other forms of malignancy and the extent of their contact with x-rays, tars, phenols, chrysarobin, and other skin irritants.

A BETTER CHANCE FOR THE HANDICAPPED CHILD

When school medical examinations were started, infectious diseases constituted such a pressing problem that little attention was given to the handicapped child whose defects were neither contagious nor crippling. Such defects, however, interfere not only with progress in school but also with health and social development.[1] For this reason the movement to provide special care for children with crippling orthopedic conditions has expanded to take in all children whose handicap is such that placing them in immediate competition with normal children would work to their disadvantage.

1. Dameshek, W.: The Outlook for the Eventual Control of Leukemia, New England J. Med. **250**: 131-139 (Jan. 28) 1954.

1. Knight, N. C.: Public Health Problems as Indicated by Physical Defects in the School Age Child, Mississippi Doctor **27**:289-292 (Nov.) 1949.

At present there are no accurate estimates of the actual number in the United States of children so handicapped, because such studies as have been made have used different definitions of handicap, different methods of observation, or different statistical procedures. Lesser and Hunt [2] have used what information is available to make an estimate of the problem as it existed in 1952 and have revealed some startling figures. At that time about 2 million children between 5 and 20 years of age had severe speech disorders. About 10% of these are included in the group with impaired hearing, 4% in the group with cerebral palsy, and 2% in the group with cleft palate. About 1,500,000 had severely impaired hearing, one million had crippling orthopedic conditions, 675,000 had rheumatic fever, 285,000 had cerebral palsy, 275,000 had epilepsy, 64,000 had cleft lip or palate, and 60,000 had severely impaired vision. Of the last group special facilities are available for only 8,000.

Although special classes should be provided for all children who need them and who otherwise could not attend school, the problem is qualitative as well as quantitative. In a study of special classes in New York City, Wallace, Wrightstone, and Gall [3] found that many children were inappropriately placed in such classes and suggested certain principles of placement. "Special classes should meet the individual needs of each child by providing the essential health, educational, and transportation services, and vocational guidance. Medical criteria to guide physicians caring for handicapped children should be established by medical experts for the admission, placement renewal, and discharge procedures. Children should be placed in special classes and their placement renewed only upon the recommendation of qualified medical specialists in consultation with education and psychological specialists, but where this is not practical, a handicapped children's program should provide supportive diagnostic and consultation services for the practicing physician and his patients. The provision of special classes necessitates well-qualified medical specialists who understand school conditions and activities—school physicians, public health nurses, classroom teachers, and the various ancillary specialists. Special classes should be looked on as one unit of the general school program, should be integrated into the regular school curriculum, and should provide for the degree in regular school activities which is warranted by the physical condition of the children. There should be close liaison between the special classes, the individual practicing physician, and the various medical treatment agencies in the community. Opportunity should be created for parent education and participation. A good record system is necessary so that all members of the medical team participating in the special class activities will have access to adequate data on each child's physical progress and emotional adjustment. There should be adequate and easily accessible physical facilities for easy mobility of the children, special equipment, single-floor school buildings if possible, otherwise, elevators and ramps."

The authors stated that in too many special classes these children are treated as though they were socially inacceptable or mentally retarded, whereas this is decidedly not the case. It has been shown repeatedly that, with understanding care, assurance of affection, patient encouragement, and avoidance of directing attention to the defect, these children can make surprising strides, often putting to shame the accomplishments of normal children. A plea is made to integrate the special classes with the activities of the rest of the school insofar as possible because segregation of these children is at best a necessary evil in that it has a bad psychological effect on the handicapped child who wants to feel that he is like other children and it does not help the normal children to understand the handicapped. Because on reaching maturity the handicapped person will live in a community of predominantly normal persons, the aim of the special class should be to return its pupils to the regular classes as soon as possible. The problem is great, and it should always be remembered in dealing with the handicapped child that it is the ability, not the disability, that counts.

COLORED GLASS AND NIGHT-TIME AUTOMOBILE DRIVING

Although ophthalmologists generally agree that automobile travel at night is dangerous when the driver wears colored glasses,[1] there has been no substantial accord with respect to how much of any color, or what combinations of color, in glasses and windshields can be considered safe for general public use. The main objection to the use of tinted glass has been the possibility of an accident due to reduced visual efficiency at night. Miles [2] asserts that under night-time driving conditions visual acuity through colorless glass is 20/32 on Snellen type and that light yellow night-driving glasses reduce this to 20/34. The second shade of pink glass reduces visual acuity to 20/40, while green windshield glass reduces it further to 20/46. A combination of pink glasses and green windshield is particularly undesirable, since it results in a visual acuity of only 20/60. Even more undesirable is the effect of tinted glass on resolving power during night-time driving. The threshold is decreased from 10 seconds to 42 seconds arc by the green windshield alone. A pair of objects that would appear separate at a distance of 100 ft. when seen through a clear windshield would appear single through a green windshield until the distance had decreased to 25 ft. Similarly, other factors of vision, such as stereoscopic acuity, discrimination of angular velocity, simultaneous contrast, and intensity change have been found to be defective during night-time driving conditions when tinted glasses are worn. Miles proposes that green windshield glass be constructed in a separate layer, to be moved aside for night driving. Persons who have defective vision, including color blindness of the common type, should be instructed to avoid use of any type of tinted glass while driving at night. Since glare has been found to be inversely proportional to the area of the source, automobile headlights could be improved by being designed to have a larger area.

2. Lesser, A. J., and Hunt, E. P.: The Nation's Handicapped Children, Am. J. Pub. Health **44**:166-170 (Feb.) 1954.

3. Health Programs and Their Aid to the Handicapped Child, Public Health Rep. **69**:196-200 (Feb.) 1954.

1. Matthews, J. L.; Farnsworth, D.; Kinsey, E. V., and Byrnes, V. A.: Tinted Optical Media, editorial, Tr. Am. Acad. Ophth. **56**: 288, 1952.

2. Miles, P. W.: Visual Effects of Pink Glasses, Green Windshields, and Glare Under Night-Driving Conditions, A. M. A. Arch. Ophth. **51**: 15 (Jan.) 1954.

ORGANIZATION SECTION

ARKANSAS MEDICAL SOCIETY

The Arkansas Medical Society, which this month holds its 78th annual session, was founded Oct. 12, 1875, in Little Rock. It had had one predecessor, the Medical Association of the State of Arkansas, which, organized Nov. 21, 1870, by delegates from various county medical societies, had a brief existence. According to the "History of the Arkansas Medical Society," prepared under the chairmanship of the late Dr. Frank Vinsonhaler of Little Rock, it was found necessary to organize a new state society, which was done by addressing a circular letter to all physicians in Arkansas. At the call signed by 222 physicians, the new society was organized in 1875 at Little Rock; and "it is a matter of history that from that time to this the element of discord that disappointed the first state society has been absent from the last and present one."

Little Rock had been the scene of medical activities from the early days of Arkansas territorial history, which began in 1819. Dr. Matthew Cunningham, the first physician to locate in Little Rock, became its first mayor. The first recorded attempt to regulate the practice of medicine in Arkansas occurred in 1832 when the legislature enacted a measure providing for a board of eight physicians to be appointed by the governor whose duty would be to examine and license all persons practicing medicine in Arkansas City. The governor, however, vetoed the measure, declaring that "At this time the law is premature and impolitic, unwise and against the spirit of freedom. Wiser and more congenial for the citizens, with the spirit of freedom to tolerate quack doctors, while the learned and qualified of the profession, are at liberty to combat them."

Four years after the founding of the present society its prestige was strongly reflected in a gubernatorial proclamation on Aug. 5, 1879: "Whereas, the State Medical Society of Arkansas at its recent session, caused the appointment of certain members of that body to represent, in the absence of statutory organization for the purpose, a State Board of Health; Now, therefore, I, William R. Miller, Governor of Arkansas, do hereby make proclamation that, with a view to secure the public safety, I have called upon the Board of Health aforesaid to take such action as may be proper to protect the public against epidemic diseases and henceforth the said board will be recognized by the Executive Department of the State government and supported and maintained as such to the full extent of the power in me vested; and I ask all local boards of health to cooperate with said State Board in all matters touching the rules, regulations and enforcement of a uniform and thorough system of quarantine. . . ."

Thus the first official state board of health was created in Arkansas. Two years later the medical society succeeded in having a board of health established by legislative act.

At about this time, too, the school of medicine of the University of Arkansas was established on a permanent basis. Lectures began in the fall of 1879, and there was one graduate the following spring. In 1891 a building was erected for the school, which a few years later was endowed with $20,000 by Dr. Isaac Folsome of Lonoke, who set aside that amount in his will to establish a clinic for charity cases. In 1911 the faculty of the medical school, by an act of legislature, presented the school to the State of Arkansas, "exacting nothing in return, making a free gift of all the equity of the founders and owners of the medical school." In return for this, in the law accepting this gift these words occur: "The State of Arkansas hereby pledges its faith and honor to forever maintain a School of Medicine of the University of Arkansas as an 'A' grade medical school." This guarantee insured the permanency of the school of medicine.

Among the important projects sponsored by the Arkansas Medical Society is its annual rural health conference, which is attended by about 600 persons, representing every county in the state. The conference is co-sponsored by the Agricultural Extension Service, University of Arkansas; Arkansas Farm Bureau Federation; Arkansas Council of Home Demonstration Clubs; Arkansas State Dental Association; Arkansas State Board of Health; and the Woman's Auxiliary to the Arkansas Medical Society.

The society sponsors a public relations institute and numerous radio programs and maintains an active placement service and a close liaison with the Arkansas Personnel Managers Association, with which it discusses company-sponsored insurance plans. Headquarters are located in the Kelley Building, Fort Smith, where Mr. Paul C. Schaefer serves as executive secretary. The membership consists of 1,096 active members, 84 life members, and 50 affiliate members. Officers for 1953-1954 include Drs. Richard C. Dickinson, Horatio, president; William R. Brooksher, Fort Smith, president-elect; John H. Wilson, Magnolia, Thomas Wilson, Wynne, and Johnnie P. Price, Monticello, vice-presidents; John J. Monfort, Batesville, secretary; and Daniel H. Autry, Little Rock, treasurer. Officers for 1954-1955, elected April 21, will be announced later.

JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association is one of the oldest joint endeavors of either association, having been in existence since 1911. The committee is composed of five representatives of each of the parent organizations appointed by their respective associations. The chief general purpose of the committee is to consider principles and policies affecting the health of school children and youth that are the mutual concern of the two professions. From time to time the Joint Committee adopts resolutions and statements relative to health problems in education that are of particular and timely concern. Reproduced below are those adopted by the committee at its last two annual meetings (March, 1953, and March, 1954). These resolutions and statements will be of interest to physicians whose practice in any way touches the lives of children of school age. They will be of particular concern to physicians who serve as school board members, members of school health committees of local and state medical societies, school physicians and medical personnel in public health departments, members of school and community health councils, and others who are in any of a variety of ways closely associated with groups concerned with child health.

Resolutions of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association

1. *Animal Experimentation.* The great advances that have been made in medicine and surgery by the experimental method give convincing proof of the need for continuing such experimentation to make possible further progress in improving health and overcoming disease. In many instances such experiments necessarily involve the use of animals. Therefore the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association reaffirms its resolutions of 1946 urging that universities and colleges, medical and dental schools, schools of public health, research institutions, hospitals, and laboratories be commended for their research programs. The Joint Committee further recommends that educational efforts be directed toward improved understanding of the scientific method as a whole, the use of animals in research and diagnostic laboratories, and the careful humane treatment given animals used for these purposes in institutions conducting such research.

2. *Administration of Oxygen to Athletes.* Following review of scientific studies on the influence of oxygen administration to athletes, the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association concluded: Valid scientific evidence in support of the value of oxygen in athletic competition is lack-

ing. It is unwise and dangerous to encourage the athlete to exert himself beyond the limits he has learned to respect from instinct and experience. The anticipation of help from oxygen inhalations increases this possibility. The Joint Committee therefore strongly recommends that the use of oxygen for such purposes be disapproved.

3. *Publications Appreciation.* The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association wishes to express its appreciation to the following departments of the National Education Association for authoritative publications which have had a highly constructive influence in the school health field.

a. American Association of School Administrators—*Health in Schools.*

b. Association for Supervision and Curriculum Development—*Fostering Mental Health in Our Schools.*

c. Department of Elementary School Principals—*Health in the Elementary School.*

4. *Extension of Cooperative Action.* The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association wishes to express its appreciation to the National Council of Chief State School Officers and the Association of State and Territorial Health Officers for its excellent joint report *Responsibilities of State Departments of Education* and *Health for School Health Services.* The Joint Committee urges the widest possible distribution of the Report as a guide for State and local action and recommends extension of the same kind of cooperative endeavor to State and local levels where it does not now exist.

5. *Desirable Athletics for Children.* After study of the Report, the Joint Committee on Health Problems in Education of the National Education Association and American Medical Association endorses the recommendations of *Desirable Athletic Competition for Children* as set forth by the American Association for Health, Physical Education, and Recreation, National Education Association; Society of State Directors of Health, Physical Education and Recreation; National Council of State Consultants in Elementary Education; and the Department of Elementary School Principles, National Education Association. The Joint Committee expresses its appreciation to the American Association of Health, Physical Education and Recreation for publication and distribution of the Report and commends the Report to local communities as a guide in determining competitive athletic policies for children.

6. *Defense Against Disaster.* The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association notes the recent intensification of efforts to improve civil defense organization and practices and calls attention to the schools' responsibility in coordinated community plans to meet disaster situations. The Joint Committee's chief concern is with the health aspects of such situations and particularly with problems of preserving healthy emotional attitudes among school age children in major emergencies.

The Committee believes that the greatest potential danger in such situations is the development of panic or overwhelming anxiety in children. Past experience in dealing effectively with major emergencies shows that the two greatest needs are (a) informed leadership to which children can turn for reassurance and direction and (b) familiarity with the procedures to be followed in disaster situations and practice in carrying out these procedures.

The Committee believes that the school can best prepare itself to play an effective part in civil defense by (a) providing teachers and other school personnel with an adequate knowledge of the overall civil defense program and a definition of their specific responsibilities in the coordinated community plan for controlling emergency situations, and (b) by judicious instruction of children in the essential elements of their behavior in emergency situations and by providing practical learning experiences in those aspects of emergency situations that lend themselves to such teaching.

The Joint Committee recommends that school authorities assume responsibility for coordinating such programs with the overall community plan for civil defense through the officially constituted civil defense authorities.

7. *Television and School Children.* The Joint Committee on Health Problems in Education of the National Education Association and American Medical Association has noted the increasing importance of television in daily living and the growing concern as to the effect of television on the physical and mental health of the school age child. After careful consideration of the many problems involved the Committee believes that television, properly developed and controlled, holds great potentialities for education of our children and youth, and that the following conclusions are justified:

a. Television will not injure normal vision when (1) the set is the right size for the room; most rooms can comfortably take a 16 inch or larger tube; (2) the viewer is the proper distance from the screen—not closer than 10 feet for a 16 inch or larger tube; (3) the set is located against a light colored wall, where there is the least reflection; (4) general illumination is provided at night from shaded lamps 6 to 8 feet on either side of the screen or the room is partially darkened for daytime viewing; (5) periods of study, work, play, meals, television viewing, and other activities are so arranged so that time spent at television will not be excessively long at one sitting.

b. Television need not interfere with the study, playlife, or work assignments of the child, or cause undesirable emotional or social repercussions if parents exercise their parental obligation to work out with the child a sensible schedule for viewing television and to guide the child in selecting appropriate programs.

The Committee believes that parents are potentially the greatest force in determining the nature of television programs directed to children through judicious selection of programs and careful guidance of the child in viewing television. The Committee urges that school authorities do everything possible to emphasize the importance of this responsibility and to cooperate with parents in bringing about concerted action to assure full realization of the educational values of television.

8. *Teacher Education.* The Joint Committee on Health Problems in Education of the National Education Association and American Medical Association has noted a growing recognition of the important contribution made by the classroom teacher in maintaining and promoting the health of the school age child and a corresponding emphasis on preparation to meet these responsibilities in certain of our teacher education institutions as well as through in-service education projects of many kinds. The Joint Committee urges that these constructive efforts be continued and expanded and that both teacher education institutions and those responsible for in-service education of teachers give health the place it deserves as a chief objective of education in the education of all teachers.

Resolutions on Sports, Alcohol, and Narcotics

1. Inasmuch as a great deal of time and energy was expended by a large number of contributors and consultants in the preparation of the new Joint Committee publication *School Health Services,* be it resolved that the Joint Committee express their appreciation to these contributors and consultants for their valuable services in the preparation of the book *School Health Services.*

2. Because the National Conferences on Physicians and Schools, sponsored by the American Medical Association under the auspices of the Bureau of Health Education, are instrumental in developing good interprofessional relationships, the Joint Committee recommends that these conferences continue to be held at biennial intervals in the future.

In addition the Joint Committee urges that similar meetings on a state and local basis be held under the joint sponsorship of the state medical association, state dental association, state department of public health and the state department of public instruction.

3. The Joint Committee endorses the recommendations of the National Conference on Program Planning in Games and Sports for Boys and Girls of Elementary School Age held May 25-26, 1953.

Recommendations:

1. Programs of games and sports should be based on the developmental level of children. Boxing, tackle football, ice hockey and other body contact sports should not be included in any competitive program for children twelve and under.

2. These programs should provide a variety of activities for all children throughout the year.

3. Competition is inherent in the growth and development of the child and depending upon a variety of factors will be harmful or beneficial to the individual.

4. Adequate competitive programs organized on neighborhood and community levels will meet the needs of these children. State, regional and national tournaments, bowl, charity and exhibition games are not recommended for these age groups.

5. Education and recreation authorities and other community youth-serving agencies have a definite responsibility for the development of adequate neighborhood and community programs of games and sports and to provide competent leadership for them.

6. The competent, professionally prepared physical educators and recreation leaders are the persons to whom communities should look for basic leadership. This personnel should provide the in-service training for the voluntary worker and potential leaders. Professional physical education and recreation personnel should be actively concerned with competitive athletics in their communities and should give leadership and direction to them.

4. Inasmuch as the book *Fit to Teach* was prepared in 1938 and has served a valuable purpose since, the Joint Committee recommends that the Department of Classroom Teachers of the National Education Association and/or other appropriate professional agencies be requested to cooperate to bring about a revision or rewriting of this worthwhile volume.

5. The Joint Committee recognizes a currently increased concern regarding the school's role in alcohol and narcotics education. Instruction is now required by law in *all* states.

While the use of alcohol is generally recognized as a major problem in American life today, teaching about it in schools presents many difficulties because of the different attitudes and customs among the parents of the children being taught—differences due to cultural and religious backgrounds. Some parents are completely opposed to use of alcoholic beverages of any kind, others use them commonly.

Narcotics addiction among young people presents a serious problem, particularly in the large cities and among socio-economic groups which are underprivileged. However, the total amount of addiction is less than in previous times.

The Committee is aware that the problem goes deeper than alcohol and narcotics in themselves; helping children to gain emotional security is equally important. Problems relating to both alcohol and narcotics are found particularly among people who lack such security for one reason or another.

There is a marked difference of opinion regarding education about narcotics. Some people believe that education of any kind on the subject would only arouse curiosity and a desire to experiment and would serve no constructive purpose. However, the great majority believe that a knowledge of the hazards is a great preventive.

The Joint Committee believes that education plays a vital role in preventing the dangers inherent in the use of alcohol and narcotics. The school shares this task of education with the home and the church. An appropriate educational program should be worked out at the local level cooperatively by educators, parents, public health workers and representatives of the medical profession. Great care should be taken to see that information used is factual and scientifically accurate and that these as well as teaching methods are appropriate for the age levels concerned. Local groups can secure consultative help from the state education and public health departments, and the state medical association.

Instruction in these areas should be an integral part of the total health education program. As such, it should be properly integrated into the regular patterns of health instruction without undue emphasis or disproportionate attention.

6. Statement relative to recent instances of violence following high school basketball games.

It has come to the attention of the Joint Committee on Health Problems in Education that the season just completed has been marred by several instances of mob or gang violence following basketball games in which partisans of the team have attacked, and in some instances, seriously injured players or supporters of the other side. Such behavior is not only malicious and seriously jeopardizes the health and welfare of the victims, but is completely foreign to the nature of true sportsmanship and destructive of the purposes for which sport exists in education.

The Committee therefore urges all responsible persons, school officials, physical education teachers including coaches, parents and community leaders to take such steps immediately as will prevent such occurrences in the future and as will educate the school and community populations to see victory and defeat in a more rational perspective free from any such extraordinary and irrational emotionalism.

7. Resolution concerning "School Athletics," a publication (1954) of the Educational Policies Commission.

Inasmuch as the Joint Committee on Health Problems in Education of the National Education Association and American Medical Association believes that a sound program of athletics for all children and youth, as an integral part of the educational program, can have positive health values;

And, inasmuch as the publication of the Educational Policies Commission entitled, "School Athletics" re-enunciates certain principles, policies, and practices relating to the health aspects of school athletics previously subscribed to by this Committee,

the Joint Committee therefore endorses in principle the materials in "School Athletics" as these materials relate to the protection of the health of school children and youth.

STATEMENT BY DR. GEORGE F. LULL ON H. R. 7700

Honorable Charles A. Wolverton
Chairman, Committee on
Interstate and Foreign Commerce
House of Representatives
Washington, D. C.

Dear Sir:

I would like to take this opportunity on behalf of the American Medical Association to submit for your consideration our views concerning H. R. 7700, 83rd Congress, which is currently being studied by your committee.

The stated purpose of the bill is to amend the Public Health Service Act to provide mortgage loan insurance for hospitals and other medical facilities used in connection with voluntary prepayment health plans.

The bill would seek to achieve this purpose by authorizing the Surgeon General of the United States Public Health Service to provide, through the mechanism of a Federal Medical Facilities Mortgage Insurance Fund, federal mortgage insurance of private loans for the construction of additional hospitals and related medical facilities supplying voluntary, prepayment, group practice medical care. The bill would also require that at least 60% of the insured facilities be available for serving members of group practice, prepayment health plans. It provides further that the aggregate amount of all outstanding mortgages could not exceed one billion dollars, except that the President could authorize an increase of an additional one quarter billion.

In view of the aggregate amount of outstanding mortgages authorized to be insured, it is quite obvious that this bill contemplates something far broader than an experimental program.

The American Medical Association is opposed to the proposal for a number of reasons, the first and most important of which is the fact that there is no proved need for this type of legislation. To the extent that it would provide guaranteed loans for the establishment of "personal health service centers" and "offices for physicians and dentists" it definitely represents intrusion by the federal government into a field where the job is now being done adequately by private enterprise. Even in the smallest communities, experience has demonstrated that ample funds are available for these purposes from private sources, and that there is no need or desire for federal governmental guarantees.

On the contrary, our records indicate many examples of communities building facilities to attract young physicians and providing agreeable arrangements with regard to rentals and purchase. This is a growing practice in remote areas.

Another of the stated objectives of the bill is to encourage group practice or, more precisely, "to increase the opportunities and facilities by which doctors may associate themselves together in groups, partnerships, and other private initiative arrangements." The question immediately arises as to the advisability of enacting legislation through which the federal government will throw its weight behind a particular form of medical practice, i. e., group practice as against the individual practitioner. We do not consider this advisable, and urge that the implications of such a policy be thoroughly explored prior to any action in this respect. The American Medical Association, representing as it does over 140,000 physicians, many of whom are in group practice and many of whom are in solo or individual practice, considers it inadvisable for the federal government to enact legislation favoring a particular segment of the profession.

For the foregoing reasons, the American Medical Association does not recommend favorable consideration of H. R. 7700, 83rd Congress.

Sincerely yours,
George F. Lull, M.D.
Secretary and General Manager

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

This is one of a series of brief statements explaining the work of various departments of the American Medical Association. —ED.

The American Medical Association was founded in 1847 for the purpose of elevating the standards of medical education. One of its first acts was the establishment of a Committee on Education, which was reorganized in 1904 as the Council on Medical Education. Medical education in this country at that time was inferior to that in Europe. Standards requiring graduation from high school before admittance to medical school and five years of medical education were recommended. This was a radical requirement in those days. In addition to this, a sixth year as an intern was strongly recommended. This has gradually evolved into a program requiring three or four years of collegiate premedical preparation, four years of undergraduate study in a medical school, and a minimum of one year of internship with the majority of young physicians seeking further residency training prior to entering practice. A system of inspecting and rating medical schools was put into operation in 1906, and as a result the standards of medical education in this country have become equal, if not superior, to those of any country in the world.

Because of the importance of the intern year in the training of physicians, the Council undertook a survey of the teaching facilities of hospitals in 1912. It now maintains and publishes a list of approved medical schools and of hospitals approved for internship or residency training; it disseminates information about medical schools, hospitals, technical schools, postgraduate courses, and medical licensure. The Council also advises civic groups and works with government services and other organizations on matters related to medical education.

One of the primary activities of the Council is the maintenance of a list of approved medical schools in the United States and Canada. A medical school is approved only if on periodic inspection it meets the Council's standards with regard to curriculum, instructional staff, physical and clinical facilities, and general administrative practices. Because today all medical schools in the nation are fully approved, the Council performs a counseling rather than a policing function.

A staff of trained full-time hospital inspectors who collect information necessary for evaluation and who counsel the hospitals on ways and means of improving training has been maintained by the Council since 1928. More than 6,500 hospitals are registered, of which 856 are approved for internship and 1,131 for residency training. The Council also approves schools for laboratory technicians, occupational therapists, physical therapists, x-ray technicians, and medical record librarians. Three times a year the Council publishes a Residency Information Bulletin, which includes a list of currently available appointments to approved residencies. The bulletin is sent to physicians on request and is also made available to separation centers of the armed services and deans of medical schools. Thirty years ago the Council organized 15 committees "to recommend what preparation was deemed essential to secure expertness in each of the specialties." These committees were the forerunners of today's specialty boards. The Council works closely with these specialty boards and acts as an approving board for those desiring recognition by the A. M. A.

FEDERAL MEDICAL LEGISLATION

Medical Care for Coast Guardsmen and Dependents

The Senate Armed Services Committee has reported favorably a bill by Senator Hendrickson (R., N. J.), S. 3255, which supersedes S. 33 by Senator McCarran, previously reported. This measure would authorize medical and dental care for Coast Guardsmen and their dependents in armed forces "hospitals and other facilities when public health service facilities are not available; in the same manner, to the same extent, and under the same conditions as personnel of like class of such Armed Forces receive such hospitalization and treatment." This applies also, to those who have been retired for longevity or disability. This bill was placed on the Senate calendar for action the same day it was introduced.

Amends Appropriation for Office of Vocational Rehabilitation

Congressman Warburton (R., Del.) in H. R. 8422 would amend the appropriation act for the fiscal year ending June 30, 1954, to delete the provision limiting the federal share to $1 for each 75 cents contributed by state for vocational rehabilitation. The present act is said to have worked hardships on the states whose legislatures have not met to provide for the loss in federal money. Identical with S. 2837 by Senator Kefauver (D., Ky.), previously reported, this bill was referred to the Appropriations Committee.

Social Security Extension

Congressman Kean (R., N. J.) in H. R. 8629 has introduced an identical bill with the administration's H. R. 7199 to extend social security coverage, effective Jan. 1, 1955, to an additional 10 million persons. Six and one-half million of these would be on a compulsory basis, including self-employed physicians. This bill is a later version of the administration's bill, H. R. 6812, introduced during the preceding session of the 83rd Congress and reported previously. In addition to covering additional categories, the bill would: (1) raise benefits and increase from $3,600 to $4,200 the individual income limit on which the 2% social security tax would apply—a $12 annual per capita increase (The ultimate tax would be 3½% instead of 3¼%. The employer and the employee would each contribute ultimate 3½% by 1970 for this retirement plan. The self-employed would have a proportional increase in their ultimate tax rate.); (2) would eliminate the lowest four years of the workers earnings in computing benefits (Under H. R. 6812, the lowest years would be dropped.); (3) would increase the payments for a minimum of $25 to $30 monthly and a maximum family benefit from $168.75 to $190; (4) would permit retiring persons under 75 to earn $1,000 a year instead of $75 a month; and (5) would protect the benefit rights if one becomes blind or totally disabled for an extended period by excluding the period of disability in computing the average earnings. The disabilities would have to extend beyond six months and be medically determined. To qualify, the employee must have been covered for at least half of the time in the preceding ten years. The Secretary of the Department of Health, Education, and Welfare would contract with the state vocational and rehabilitation agencies to determine disability. State agencies would arrange to obtain the necessary medical information. If they were dissatisfied with the determination, they would have a right to a hearing and judicial review. Disabled persons would be referred to the state rehabilitation agency for indicated rehabilitation services. This bill was referred to the Ways and Means Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Lengthening Presumption of Service-Connection for Multiple Sclerosis and Chronic Functional Psychoses

Congressman Machrowicz (D., Mich.) in H. R. 8632 would amend the veterans regulations to extend the presumption of service-connection for multiple sclerosis and chronic functional psychoses from two to three years from date of separation from active service if the patient develops 10% disability or more. This bill is identical with that of Congresswoman Rogers, H. R. 6931, and almost identical with H. R. 33 by Mrs. Rogers, previously reported. The bill was referred to the Committee on Veterans Affairs.

Cleaner Air Week

Congressman Hess (R., Ohio) has introduced a joint resolution, H. J. Res. 486, which would designate the week of Oct. 24, as cleaner air week, and authorize the President to make a suitable proclamation calling upon the American citizens to undertake a "year-round campaign to abate destructive air pollution from all sources, including smoke, soot, fly-ash, noxious fumes, and gases in homes and communities" and requesting cooperation of official and nonofficial agencies in the program. The bill was referred to the Committee on Judiciary.

STATE MEDICAL LEGISLATION

Kentucky

Bills Enacted.—H. 139, was approved March 25, 1954. It provides regulations relating to the **control of rabies.** H. 290, became Law without Approval, March 25, 1954. It provides general amendments to the law relating to the licensing of optometrists and, among other things, **defines therein orthoptic technician** as a person who trains and directs individuals to engage in ocular exercises designed to correct visual defects. The law provides that such persons shall not be required to be licensed as optometrists providing that such training and direction are done pursuant to and under the instructions of a duly licensed physician, osteopath, or optometrist and consist solely of visual training or orthoptics or ocular exercises.

Maryland

Bill Enacted.—H. 27, has become Ch. 76 of the Laws of 1954. It amends the law relating to chiropody by **authorizing chiropodists to diagnose and to treat by surgical,** medical, and mechanical means all ailments of the human foot. The term **"surgical treatment" is defined** as limited to the cutting or surgery performed on the soft tissues of the foot, superficial to the deep fascia, and to the toes; with the amputation of a toe or toes and the use of an anesthetic, other than local, prohibited.

Massachusetts

Bills Introduced.—H. 2672, to amend the law relating to the **inspection and licensing of hospitals** and other institutions, proposes to add to the list of institutions public and private infirmaries. H. 2687, proposes the appointment of a special commission to make a study relative to the care, treatment, and rehabilitation of **sexual psychopaths.** S. 700, proposes to authorize Massachusetts to cooperate with certain other New England states in the establishment of a **New England board of higher education** with the aim of furthering higher education in the field of medicine and other studies. S. 712, proposes to authorize the committee on legal affairs to make an investigation and study of the **method of committing persons to mental hospitals,** and the rights, care, treatment, and release or discharge of persons so committed. S. 720-App. A, proposes the creation of a special commission to investigate and study matters relative to the **establishment of a medical and dental school.**

Michigan

Bill Introduced.—H. 242, proposes to amend the law **relating to tuberculosis** by providing that if the health officer should find that any person having tuberculosis is a menace to others, he may petition the probate court, and the probate court may, if it appears that such person is a source of danger to others, commit the person to an approved hospital or institution maintained for the care and treatment of persons afflicted with tuberculosis.

Bills Enacted.—H. 205, has become Public Act No. 54 of the Acts of 1954. Among other things, it authorizes the **board of medical examiners to grant temporary annual licenses** to practice medicine to doctors who, having entered the United States under an Act of Congress, were residents of the state of Michigan prior to Jan. 1, 1952, and who applied to be registered and certified under this act and satisfactorily complied with the requirements for such registration and certificate, excepting the requirement of United States citizenship, in lieu of which such applicants shall furnish satisfactory proof of having declared their intention to become citizens of the United States or having filed a petition for naturalization. SCR. 45, was adopted April 10, 1954. It creates a special committee to study the problems pertaining to **narcotic addicts.** S. 1082, has become Public Act No. 20 of the Acts of 1954. It amends the **basic science act** by authorizing the board to **waive the requirement** that an applicant take an examination in instances in which it is shown that the applicant is of good moral character and possesses a high school education, that the applicant has passed a written examination in the basic sciences in some other state given by the official basic science board of such state, and that the examination and passing requirements at the time were substantially equal to those of the Michigan board. S. 1255, has become Public Act No. 60 of the Acts of 1954. It provides, among other things, that **every practicing physician** who shall examine any person and find that such person is addicted to the **use of narcotic drugs** shall make a **report** thereof to the health officer of the county, city, township, or district in which the person is a resident or to the state health commissioner, where there is no local health officer.

New York

Bills Enacted.—AR. 78, was adopted March 20, 1954. It provides that a special legislative committee should make a survey and study of the social, educational, and physical problems of persons afflicted with **cerebral palsy.** A. 326, has become Ch. 494 of the Laws of 1954. It amends the penal code by providing that a person who shall falsely make, alter, **forge, or counterfeit a doctor's prescription,** or utter the same, shall be guilty of forgery in the third degree. A. 457, has become Ch. 495 of the Laws of 1954. It amends the penal law by making it unlawful to obtain a **barbiturate drug or prescription therefor by fraud or deceit.** A. 796, has become Ch. 391 of the Laws of 1954. It authorizes applicants for a license to practice **physiotherapy** to practice physiotherapy under supervision in a duly incorporated hospital, clinic, or public health agency or in the office of a licensed physician or a licensed physiotherapist for a period of six months **during the pendency of their application for a license.** S. 2788, has become Ch. 598 of the Laws of 1954. It amends the municipal code by authorizing counties, cities, towns, and villages to provide **general ambulance service** for persons found within their boundaries and to purchase insurance indemnifying against **liability for the negligent operation of such ambulance** and the negligent use of equipment and supplies incidental to the furnishing of such ambulance service.

Rhode Island

Bill Introduced.—H. 770, proposes the appointment of a committee to study the establishment of a **permanent school for attendant or practical nursing** and to evaluate the present practical nurse program in the state.

Texas

Bills Introduced.—S. 11-X, proposes the appropriation of funds to carry forward the work of the Texas **commission on alcoholism.** H. 107-X, proposes regulations for the vaccination of dogs as part of an **anti-rabies program.**

Virginia

Bills Enacted.—H.J.R. 110, was adopted March 13, 1954. It provides for the creation of a committee to make a study and to report upon the **operations of the alcohol clinic** and related facilities for the care, treatment, and rehabilitation of alcoholics. S.J.R. 8, was adopted March 13, 1954. It directs the Virginia Advisory Legislative Council to make a thorough study of the present program of the localities of the state for **development of institutions of the nursing home type** for the care of the chronically ill, the feasibility of expanding facilities of this type and the means, if any, that should be employed to that end. H. 640, has become Ch. 389 of the Laws of 1954. It authorizes the granting of a divorce when **one spouse has been adjudged insane.** H. 681, has become Ch. 681 of the Laws of 1954. It directs the Medical College of Virginia **to establish and maintain a mobile psychiatric clinic** under the direction of a psychiatrist certified by the American Board of Psychiatry and Neurology. H. 715, has become Ch. 390 of the Laws of 1954. It provides that any person who takes a **signed, written statement from a person who has sustained a personal injury** relative to such injury shall leave a copy of such statement with the injured person at the time of taking it. S. 30, has become Ch. 395 of the Laws of 1054. It authorizes the board of pharmacy **to permit physicians** in towns having a population of a thousand or less **to compound and sell medicines** unless the physician is shown to be morally or professionally unfit to do so. S. 31, has become Ch. 625 of the Laws of 1954. It authorizes the prescriber of a dangerous drug to indicate on the prescription **whether or not the original prescription may be refilled.** In the absence of such a statement the prescription for a dangerous drug may not be refilled. S. 32, has become Ch. 396 of the Laws of 1954. It amends the law relating to the **definition of dangerous drugs** by including in such list amphetamine, penicillin, streptomycin, chloramphenicol, and other antibiotics. S. 47, has become Ch. 556 of the Laws of 1954. It **amends the Medical Practice Act by exempting** therefrom commissioned or contract medical officers in active service in the Army, Navy, Coast Guard, Marine Corps, Air Force, Public Health Service, or Marine Hospital Service. S. 48, has become Ch. 627 of the Laws of 1954. It **amends the Medical Practice Act relating to grounds for revocation** of a license by, among other things, adding to such grounds the use of intoxicating liquors, narcotics, or drugs to the extent that the licentiate is unfitted for the performance of his professional obligations and duties. S. 49, has become Ch. 628 of the Laws of 1954. It **amends the Medical Practice Act** by authorizing applicants who have been refused admittance to an examination or who have been refused a certificate or license to appeal to the supreme court of appeals. S. 117, has become Ch. 406 of the Laws of 1954. It provides that no person shall be required to submit to **determination of the amount of alcohol in his blood** at the time of an alleged offense, but, should the accused request in writing such determination, the arresting officers shall render full assistance in obtaining it. The failure of the accused to request such a test is not evidence and shall not be subject to comment in a later trial. S. 203, has become Ch. 414 of the Laws of 1954. It proposes regulations for the granting of **scholarships to medical students** who will agree to engage in the rural practice of medicine in Virginia after graduation. S. 316, has become Ch. 508 of the Laws of 1954. It authorizes counties to band together to formulate **county or district health departments.**

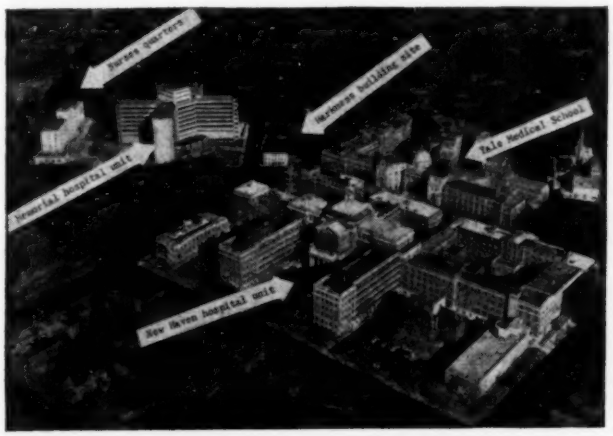
MEDICAL NEWS

CONNECTICUT

Cardiac Symposium.—The Waterbury Hospital and the Waterbury Heart Association will present the following symposium at the hospital, May 6, from 11:30 a. m. to 1:30 p. m.:

Some New Concepts of Hypertension, George A. Perera, New York.
Pathological Aspects of Hypertension, Levin L. Waters, New Haven, Conn.
Use of Hypotensor Drugs, Edward D. Freis, Washington, D. C.

Yale-New Haven Medical Center.—The Yale University School of Medicine and the Grace-New Haven Community Hospital have announced an expansion of their cooperative arrangement under a new "Yale-New Haven Medical Center" plan in which the school and the hospital will retain their independent corporate structures but will embark on a joint development program for care of patients and for research and teaching similar to that of the Columbia-Presbyterian Medical Center in New York. The joint announcement by Pres. A. Whitney Griswold, Ph.D., of Yale University and Mr. George S. Stevenson, president of the Grace-New Haven Community Hospital included (1) the appointment of Mr. Hiram Sibley, executive director of the Connecticut Hospital Association



Air view of Yale-New Haven Medical Center.

since 1948, to the newly created post of director of program development of the Yale-New Haven Medical Center and (2) the appointment of an advisory committee on program development including Drs. Vernon W. Lippard, dean of the school of medicine, Albert W. Snoke, director of the hospital, Gustaf E. Lindskog, professor of surgery, and Luther K. Musselman, chief of the hospital's general service staff. As presently constituted, the Yale-New Haven Medical Center, as seen in the illustration, is concentrated within three blocks in New Haven, where more than 3,000 physicians, nurses, and other personnel carry on its work.

Both the school of medicine and the hospital are among the nation's oldest medical institutions. New Haven Hospital was established on its present site in 1826 by 10 physicians, including 5 members of the Yale faculty, who contributed their own funds to start the hospital. Grace Hospital, opened in 1892, was consolidated with New Haven Hospital in 1945 under the corporate title of Grace-New Haven Community Hospital, and funds were raised to construct the new Memorial Unit, completed early in 1953. Plans for the Yale-New Haven Medical Center also comprise closer affiliation of the Yale and Grace-New Haven Schools of Nursing, the Yale Psychiatric Institute, the Yale Department of Public Health, and the Child Study Center. Although Medical Center operations will accent the development of services already in existence rather than construction of new buildings, the physical plant is continuing to expand. The hospital's new 10-story memorial unit represents a major addition to its facilities, and the Yale School of Medicine has received $2,750,000 from the Commonwealth Fund to construct the Edward S. Harkness Memorial Hall, a residential unit for medical students, which is scheduled for completion by September, 1955. An immediate objective of the new plan will be the carrying out of a program of public relations, fund-raising promotions, and program development.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

DISTRICT OF COLUMBIA

Annual Award.—The George Washington Medical Society's annual award "for distinguished and meritorious service in the field of medicine or allied sciences" was presented Feb. 20 to Joseph Hyram Roe, Ph.D., professor of biochemistry, who has been instrumental in developing methods for determining the presence of vitamin C, fructose, inulin, serum amylase, lipase, calcium, and dextran. His vitamin C method was one of the main techniques used in nutrition surveys made by the World Health Organization after World War II to determine (1) the effects of food shortages on the peoples of Western Europe and (2) the imminence of scurvy. Dr. Roe is the author of the textbook, "The Principles of Chemistry" (now in seventh edition) and "A Laboratory Guide in Chemistry" (now in second edition) and is joint author of "A Laboratory Manual of Biochemistry."

Phi Delta Epsilon Lecture.—The Psi chapter of the Phi Delta Epsilon fraternity at the George Washington University School of Medicine, Washington, D. C., presents the seventh annual lectureship at 12 noon, May 8, in the medical school building. John C. Krantz Jr., Ph.D., professor of pharmacology, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, will discuss "Anesthesia—Consciousness and the Living Cell."

GEORGIA

Dr. Dyer Receives Theobald Smith Medal.—Dr. Rolla Eugene Dyer, director of research, Emory University School of Medicine, Atlanta, was awarded the Theobald Smith medal and certificate at the recent meeting of the American Academy of Tropical Medicine in Louisville, Ky., for his research in tropical diseases. Before his appointment to the Emory faculty in 1950, Dr. Dyer served with the U. S. Public Health Service for 34 years and from 1942 to 1950 was director of the National Institutes of Health. In presenting the medal, Asa C. Chandler, Ph.D., head of the biology department at Rice Institute, Houston, Texas, said: "Dr. Dyer has contributed a great deal to the development of government help in scientific research, which ultimately led to the formation of the National Science Foundation, and to the far-flung program of research grants and fellowships which the National Institutes of Health now sponsor."

ILLINOIS

Public Relations Meeting at Quincy.—Physicians, dentists, pharmacists, nurses, public health personnel, medical and dental secretaries, and others are invited to attend the annual Public Relations Meeting conducted by the Adams County Medical Society, at the Lincoln-Douglas Hotel, Quincy, May 10. Dr. W. W. Bauer, Chicago, Director, A. M. A. Bureau of Health Education, and Editor, *Today's Health*, will have as his topic "Patients are Particular People." Dr. Bauer's talk at 8 p. m. will be preceded by a fellowship hour and followed by a snack bar lunch, compliments of the medical society.

Meeting on Mental Health.—The Illinois Society for Mental Health held a luncheon meeting on mental health in industry at 12 noon, April 7, at the Standard Club, 320 Plymouth Court, Chicago. A presentation by Dr. Ralph T. Collins,

Rochester, N. Y., chairman, American Psychiatric Association committee on industrial psychiatry, was followed by the motion picture "The Inner Man Steps Out." Panel discussion by Dr. John O. McNeel, medical director, St. Louis Labor Health Institute, Dr. Harold I. Meyer, medical director, Illinois Bell Telephone Company, Chicago, and Mr. J. F. Zimmerman, director of research personnel services, Sinclair Research Laboratories, Inc., preceded adjournment.

Chicago

Public Lectures on Low Sodium Diet.—The Chicago Heart Association, in collaboration with the Chicago Dietetic Association, the Chicago Home Economics in Business, and the Chicago Nutrition Association, will present lectures and demonstrations on the low sodium diet in the auditorium of the Peoples Gas Light and Coke Company, 122 S. Michigan Ave., May 5 and 12, at 2 p. m. Any patient on a low sodium diet, or the person who prepares that patient's meals, is welcome if referred in writing by his physician. Dietitians, nutritionists, and all those in or connected with the medical profession are invited. Reservations are not necessary.

Illinois Alumni Clinic Day.—The Medical Alumni Association of the University of Illinois College of Medicine will hold the annual Medical Alumni Clinic Day, May 17, at the Illini Union Building, 715 S. Wood St., 9:30-11:30 a. m. The alumni will be guests of the college of medicine at luncheon at 12 noon. A tour of the campus will begin at 2:15 p. m. Dr. Frederick H. Falls will be guest of honor at the banquet at the Bismarck Hotel at 6 p. m. Reservation for the banquet ($7, informal), should be mailed to Dr. Michael H. Streicher, '24, Executive Secretary, Medical Alumni Association, 1853 W. Polk St., Chicago 12. Guests are invited.

James T. Case Lectures.—Northwestern University Medical School has issued the following schedule for the James T. Case lectures, which will be given at Passavant Memorial Hospital, 303 E. Chicago Avenue, 7-9 p. m.:

May 3, Radiation Therapy of Malignancies of the Head and Neck, Erich M. Uhlmann, Chicago.
May 4, Radiation Therapy in Hodgkin's Disease, Lymphosarcoma, the Leukemias, and Lymphomatous Diseases, James W. J. Carpender, Chicago.
May 5, Radiation Therapy of Carcinoma of the Breast, Lungs, Esophagus, and Brain, William T. Moss, Chicago.
May 6, Radiation Therapy of Carcinoma of the Cervix, Body of the Uterus, and Ovaries, Erwin M. Japha, Chicago.
May 7, Radiation Therapy of Cutaneous Lesions, Including Contact Therapy, Anna Hamann, Evanston, Ill.

INDIANA

Society News.—The Indiana Academy of Ophthalmology and Otolaryngology will hold the annual meeting in the Student Union Building, Indiana University Medical Center, May 5-6. Guest speakers will be Drs. Francis W. Davison, Danville, Pa., and James H. Allen, Tulane University of Louisiana School of Medicine, New Orleans. Sessions are open to members of the Indiana State Medical Association. Details may be obtained from Dr. John R. Swan, 915 Hume Mansur Bldg., Indianapolis.

Personal.—Dr. George F. Ames, 95 years old, was recently notified by a committee of citizens in Eaton, where he has practiced for 72 years, that a 2-bed room on the first floor will be dedicated in his honor in the new wing at Ball Memorial Hospital in Muncie.——Dr. Leroy E. Burney, Indianapolis, state health commissioner, has been named a member of the National Commission on Chronic Illness.——Dr. Arthur P. Rhamy, Wabash, has accepted a position as chief resident in urology at Philadelphia General Hospital. Dr. Rhamy has been affiliated with Emory University School of Medicine, Atlanta, and Tulane University of Louisiana School of Medicine, New Orleans. In World War II, he served as commander in the Navy in the Pacific theater.——Dr. Wilbur P. Beeson, Greenfield, has left for Kenya Colony, British East Africa, to serve the next five years as a medical missionary.——Dr. A. Berniece M. Williams, Fort Wayne, has been reappointed for a four year term on the city board of health. Her full term appointment came six months after she was named to fill out the unexpired term of Dr. Marshall B. Catlett, whose death created the vacancy. Dr. Williams, the wife of Dr. Aubrey H. Williams, was physician for the Fort Wayne city schools during World War II.

KANSAS

Tuberculosis Association Endows Thoracic Disease Chair.—The Kansas State Tuberculosis Association has endowed the new chair of thoracic diseases at the University of Kansas School of Medicine, Kansas City, with a gift of $10,000 a year for five years. Dr. Martin James FitzPatrick, assistant professor of medicine, will occupy the new chair of thoracic diseases. Dr. FitzPatrick served in the Medical Corps, U. S. Army. He has been affiliated with Bellevue Hospital Center and Roosevelt Hospital in New York and with Fitzsimons General Hospital in Denver.

State Medical Meeting in Topeka.—The Kansas Medical Society will hold its 95th annual session, May 2-6, at the Jayhawk Hotel, Topeka. Panels will be presented on peripheral vascular disease, Tuesday at 2 p. m., and on preoperative and postoperative care of infants and children at 3:40 p. m. On Wednesday there will be a panel on metabolic and thyroid disease at 2 p. m. and a panel on uterine inertia and prolonged labor at 3:40 p. m. The annual banquet will be held Wednesday, 7 p. m., at the Topeka Country Club. Dr. Lucien R. Pyle, Topeka, president, will preside. Guest speakers for the sessions include: Dr. David R. Akers, Denver; Drs. Frederic G. Burke and Andrew A. Marchetti, Washington, D. C.; Drs. James R. Cook and Paul M. Moore, Cleveland; Dr. Oliver Cope, Boston; Dr. Charles E. Iliff, Baltimore; Dr. Ormand C. Julian, Chicago; Dr. Shepard Shapiro, New York; Dr. Maurice H. Stauffer, Rochester, Minn.; and Dr. Bernard A. Watson, Clifton Springs, N. Y. On Monday, there will be competitive golfing at the Topeka Country Club and shooting at the Topeka Gun Club. At the tournament banquet, 7:30 p. m., at the Topeka Country Club, Phog Allen, basketball coach, and Chuck Mather, football coach, will show films from the University of Kansas. The Kansas chapter, American Academy of General Practice, which will hold its annual assembly simultaneously at the Jayhawk Hotel, will present a symposium at 6:30 p. m. Monday before the banquet, at which the Hon. Walter H. Judd, M.D., congressman from Minnesota, will be the speaker. The Kansas chapter, American College of Chest Physicians, will hold an x-ray conference (panel discussion) to open its annual meeting Tuesday, 4 p. m., at the Kansan Hotel. A panel on medicolegal problems is scheduled for 2:30 p. m. Sunday at the annual meeting of the Kansas Medical Assistants' Society, which will meet May 2-3 at the Kansan Hotel. The woman's auxiliary to the Kansas Medical Society will hold its meetings simultaneously with those of the state medical society.

KENTUCKY

Pediatric Course.—The Pediatric Post-Graduate Course, sponsored by the Kentucky State Medical Association, the University of Louisville School of Medicine, and the American Academy of Pediatrics, will be held at the new Children's Hospital, Louisville, May 6-June 24. Among the speakers will be Drs. Lawrence A. Davis and Alex J. Steigman, New York; Drs. Israel Diamond, Boston; Henry H. Work, Washington, D. C.; William A. Brodsky, Cincinnati; and Hugh B. Lynn, Pompton Plains, N. J.

LOUISIANA

Narcotic Violation.—Dr. David Caul, Kenner, pleaded guilty in the U. S. District Court at New Orleans to a charge of violating the federal narcotic law. On Aug. 26, 1953, he was sentenced to serve a term of two years.

Appoint Professor of Urology.—Dr. Hugh Thompson Beacham, former clinical associate professor, Louisiana State University School of Medicine, New Orleans, has been named professor of urology to replace Dr. Pierre J. Kahle, retired. Dr. Beacham has served as clinical assistant at Tulane University of Louisiana School of Medicine and has been a senior visiting surgeon in the Charity Hospital of Louisiana, urology division, in New Orleans.

MAINE

Pediatric Clinics.—The following pediatric clinics have been scheduled: Eastern Maine General Hospital, Bangor, 1:30 p. m., May 28, June 25; Thayer Hospital, Waterville, 1:30 p. m., May 4, June 1; and Northern Maine Sanatorium, Presque Isle, 1:30 p. m., May 26.

MARYLAND

Lectures on Head and Spine Injuries.—In its course on industrial medicine and traumatic surgery the Postgraduate Institute of Doctors Hospital, Baltimore, will present the panel discussion "Syndromes Arising From Head and Spine Injuries" May 4, 9:15 p. m., with Dr. Isidore H. Maseritz, associate in orthopedic surgery, University of Maryland School of Medicine, Baltimore, as moderator. Head injuries will be discussed by Dr. Sidney R. Govons; neck, shoulder, and arm syndrome by Dr. H. Alvan Jones; and low back syndrome by Dr. James G. Arnold.

Medical-Surgical Symposium.—The sixth annual Medical and Surgical Symposium, sponsored by the Medical Association of the Lutheran Hospital of Maryland (700 Ashburton St., Baltimore 16), will be held May 8. The morning session will consist of a talk, entitled "Thin Bones, Old People, and Hormone Therapy," by Dr. Edward C. Reifenstein Jr., New York, to be followed by question and answer period. In the afternoon Dr. Louis A. M. Krause, chief of medicine, Lutheran Hospital of Maryland, and professor of clinical medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, will act as moderator for a panel discussion on hypertension. The participants will include Dr. William A. Jeffers, chief, hypertension section, University of Pennsylvania School of Medicine, Philadelphia; Dr. Paul Kimmelstiel, director of clinical laboratories, Charlotte Memorial Hospital, Charlotte, N. C.; and Dr. Thomas J. O'Neill, associate professor of thoracic surgery, Graduate School, University of Pennsylvania School of Medicine, Philadelphia.

MASSACHUSETTS

Dr. Parran to Deliver Cutter Lecture.—The Harvard School of Public Health, Boston, announces that Dr. Thomas Parran, dean, Graduate School of Public Health, University of Pittsburgh, will deliver the Cutter Lecture on Preventive Medicine, "Contributions of Public Health to the Control of Chronic Disease," May 6, 5 p. m., in the Jimmy Fund Building, 35 Binney St. Physicians, medical and public health students, and others interested are invited.

Dr. Hinton Retires.—After 38½ years as director of the Wassermann Laboratory of the Massachusetts Department of Public Health, Dr. William A. Hinton, Canton, retired Dec. 31, 1953. Dr. Hinton devised the Hinton test for the detection of syphilis, now used widely throughout the world. The first Negro ever awarded a professorship at Harvard, Dr. Hinton was a professor of preventive medicine and hygiene at Harvard Medical School (1912-1921) and has served as an instructor in preventive medicine, bacteriology, hygiene, neuropathology, and immunology since 1921. He was a professor at Simmons College (1919-1953); a director of the Committee on Research and Syphilis, Inc.; chief of clinical laboratories of the Boston Dispensary (1916-1952); and has been a consultant to the U. S. Public Health Service since 1935. A letter to Dr. Hinton from Gov. Christian A. Herter reads, in part: "As Governor, it gives me pleasure to commend you officially, both as a noted scientist and also as a faithful servant of the Commonwealth, who, after thirty-eight years of devoted service, now retires—as did the old Roman senators—to a well-deserved 'otium cum dignitate.' Through your pioneer studies and the services of your well-organized laboratory, you have contributed materially and vitally to the relief of the people of the Commonwealth from the scourge of a dreaded disease. Your name is known the world over for singular achievements, which have benefited all of mankind. I join with your many friends and colleagues in wishing you many more happy years of wonderful achievement."

MICHIGAN

New Address of Board of Registration.—The Michigan State Board of Registration in Medicine has moved to 118 Stevens T. Mason Building (New State Building), West Michigan Avenue, Lansing 26. Dr. J. Earl McIntyre is executive secretary. Telephones: Capital Exchange 5-8144, ext. 2862-63; Saturday afternoon and night line 2-6084.

Annual Clinic.—At the 26th annual clinic of the Ingham County Medical Society at Hotel Olds, Lansing, May 6, 2 p. m., the following program will be presented:

Cancer Detection, Emerson Day, New York.
Differential Diagnosis of Lesions of the Breast, Joseph H. Farrow, New York.
Importance of Early Diagnosis and Adequate Treatment of Cancer of the Uterus, Michael J. Jordan, New York.
Diagnosis and Treatment of the Adrenal Glands, Lewis M. Hurxthal, Boston.

A social hour and dinner at 6:30 p. m. will be followed by the address "Frontiers in Cancer Research; Progress Towards the Chemotherapeutic Control of Neoplastic Disease" by Dr. Cornelius P. Rhoads, director, the Sloan-Kettering Institute for Cancer Research, New York.

NEW JERSEY

Conference on the Heart in Industry.—A Heart-In-Industry Conference will be presented by the New Jersey Heart Association at the Mutual Benefit Life Insurance Company, 300 Broadway, Newark, 2-5 p. m. May 5. Dr. Henry C. Crossfield, East Orange, N. J., will be chairman of the conference. Representatives of industry, labor, insurance companies, and the medical profession will discuss various phases of the problem. Physicians and members of allied professions are invited.

NEW YORK

Alpha Omega Alpha Lecture.—The Alpha Omega Alpha Medical Society at the State University of New York College of Medicine at New York City, Brooklyn, will present the annual lecture, May 4, 5:15 p. m., in Hoagland Hall, 335 Henry St., Brooklyn. Dr. Isidore Snapper will discuss "The Metabolism of Calcium and Phosphorus in Diseases of the Bone."

Cancer Award to Paul Gerhardt.—Dr. Paul R. Gerhardt, director of the bureau of cancer control, New York State Department of Health, Albany, received the American Cancer Society's annual award at the sixth annual Institute for Cancer Volunteers in Syracuse Jan. 18-19. The award consists of a medal and the following citation: "1953 Medal of the American Cancer Society, Inc. Presented to Paul R. Gerhardt upon the nomination of the New York State Division in recognition of his important contributions to the Control of Cancer." At the recent annual meeting of the American Cancer Society in New York City, Dr. Gerhardt, who has been serving out the unexpired term of the late Dr. Louis C. Kress as a national board member, was reelected for a two-year term.

Personal.—Dr. Louis H. Bauer of Hempstead, Past President of the American Medical Association, and Dr. Clayton W. Greene of Buffalo, have been reappointed by Gov. Thomas E. Dewey as members of the Public Health Council. The reappointments are for six year terms.——Dr. Maurice L. Tainter, vice-president of Sterling Drug, Inc., has been elected a trustee of Rensselaer Polytechnic Institute. Dr. Tainter, a member of the board of governors of Union University, Schenectady, and a trustee of the Albany College of Pharmacy, is president-elect of the New York Academy of Sciences.——Dr. Walter C. Levy, district state health officer in Syracuse, has been appointed principal public health physician in the health department's division of local health services; he succeeds Dr. James J. Quinlivan, recently appointed director of the Office of Public Health Education.——Dr. John T. Gentry has been appointed health officer of the Syracuse district, succeeding Dr. Levy.——Dr. Herman E. Hilleboe, Albany, state commissioner of health, has been elected chairman of the Joint Hospital Survey and Planning Commission, which since 1948 has allocated more than 26 million dollars in hospital construction grants to 83 approved hospital projects.

New York City

Bancroft Lecture.—The sixth annual Frederic W. Bancroft lecture in surgery, sponsored by the Beth David Hospital Alumni Association, will be given May 5, 8:30 p. m. at Beth David Hospital, 161 E. 90th St., by Dr. John H. Mulholland, professor of surgery, New York University College of Medicine, who will discuss "Benign Diseases of the Pancreas."

Hospital News.—The division of neoplastic diseases, Montefiore Hospital for Chronic Diseases, is presenting conferences at 3 p. m. on the first Friday of each month. On May 7, Dr. Isidore S. Edelman, assistant professor of medicine, University of California Medical School, San Francisco, will discuss "The Internal Distribution of Body Sodium, Potassium and Water; Its Implications on the Interpretation of Metabolic Balance and Tracer Dilution Data."

Meeting on Cancer.—The New York Cancer Society, May 4, 8:30 p. m., in the New York Academy of Medicine, will present "Biology Versus Morphology in the Distinction Between Benign and Malignant Neoplasms" by Dr. Harry S. N. Greene, Yale University School of Medicine, New Haven, Conn., and "Stress and Cancer" by Dr. Alexander Horava, University of Montreal, Montreal, Canada. Discussion will be by Dr. Fred W. Stewart, Memorial Center for Cancer and Allied Diseases, and George W. Woolley, Ph.D., Sloan-Kettering Institute for Cancer Research. Physicians and medical students are cordially invited.

NORTH CAROLINA

Centennial Meeting of State Medical Society.—The Medical Society of the State of North Carolina will hold its 100th annual session at the Hotel Carolina in Pinehurst May 3-5 under the presidency of Dr. Joseph A. Elliott Sr., Charlotte. At 10 a. m., Tuesday, Dr. Walter B. Martin, Norfolk, Va., President-Elect of the American Medical Association, will discuss "Aspects of Medical Problems in the Nation," after which Dr. George F. Lull, Chicago, Secretary-General Manager of the A. M. A., will speak on the "A. M. A. and Its Services to the Membership." At 11:20 a. m., Dr. Paul F. Whitaker, Kinston, will pay tribute to the centennial session in a talk entitled "Past, Present and Future—A Continuity." Tuesday morning Dr. W. Norman Thornton, Charlottesville, Va., will discuss "The Importance of the Early Recognition and Treatment of Toxemia in Pregnancy." Dr. Eugene P. Pendergrass, Philadelphia, will discuss "The Role of Roentgen Examinations in Early Detection of Lung Cancer" before the section on radiology Tuesday afternoon. The section on surgery will have a panel discussion that afternoon on diseases of the breast, which will be moderated by Dr. Clarence E. Gardner Jr., Durham. After the president's dinner, 7 p. m., Dr. Hilton S. Read, Atlantic City, N. J., will present an address, entitled "Neurotics Are People." Dr. Meyer A. Perlstein, Chicago, will speak on crippled children at 9:35 a. m., Wednesday, before the general session and before the section on practice of medicine and surgery Wednesday afternoon. The woman's auxiliary will meet simultaneously.

NORTH DAKOTA

Narcotic Violation.—Dr. John Lawrence Dach, Hettinger, pleaded guilty in the state court of Hettinger to an information charging a violation of the narcotic law of North Dakota, and on Nov. 7, 1953, he was fined $100.

Dr. Vinje Retires.—Dr. Syver R. Vinje, a physician at Hillsboro for many years, retired Nov. 1, 1953. He had been city health officer since 1915, served in the state senate, served nine years on the board of education, and was chairman of the Traill County Red Cross chapter from 1924 to 1928. Last year Dr. Vinje was honored by the state association, awarded a certificate, and made a member of the 50-Year Club.

State Medical Meeting in Grand Forks.—The annual meeting of the North Dakota State Medical Association will be held in Grand Forks, May 1-4, under the presidency of Dr. Joseph Sorkness, Jamestown. Dr. Arthur C. Kerkhof, Minneapolis, will serve as moderator for a panel on medical emergencies Monday, and Dr. Joseph F. Kuzma, Milwaukee, for a panel on ovarian tumors, Tuesday, in which Dr. John H. Randall, Iowa City, will speak on gynecology and Dr. Charles O. Heilman, Fargo, on radiology. Other presentations include:

Nature and Management of Acute Renal Insufficiency, Howard M. Odel, Rochester, Minn.
Proctologic Diagnosis, Robert T. McCarty, Milwaukee.
Emergencies in the Newborn Period, Harry Medovy, Winnipeg, Canada.
Acute Hand Injuries, W. H. Frackelton, Milwaukee.
Endocrine Problems in General Practice, Frank N. Allan, Boston.
Bleeding in Late Pregnancy, John H. Randall, Iowa City.

OHIO

Cancer Registry.—The Cancer Control Council of the Public Health Federation, which is establishing a Cancer Registry under the direction of Dr. Charles M. Barrett at the Cincinnati General Hospital, is supporting the project from funds received as bequests. The registry will ultimately serve in Cincinnati and Hamilton County as a central source for receiving and classifying data concerning patients with cancer who are known to local clinics and hospitals.

Academy News.—The Academy of Medicine of Cincinnati will have as guest speaker, May 4, Dr. Carl C. Pfeiffer, professor of pharmacology, University of Illinois College of Medicine, Chicago, who will present "Untoward Reactions to Drugs." On May 18, Dr. Howard A. Rusk, professor, department of physical medicine and rehabilitation, New York University College of Medicine, New York, will have as his subject "Dynamic Therapeutics in Chronic Disease."

RHODE ISLAND

State Medical Meeting in Providence.—The annual meeting of the Rhode Island Medical Society will be held at the society's Medical Library, 106 Francis St., Providence, May 5-6. Dr. Earl F. Kelly, Pawtucket, president, will preside at the annual dinner Thursday at the Narragansett Hotel, where the speaker will be Dr. Frank E. Wilson, Director, Washington Office of the American Medical Association. Guest lecturers at the scientific sessions include:

Walter S. Burrage, Boston, Cortisone and ACTH in the Treatment of Allergic Disease.
Harold H. Rosenfield, Boston, Progress of Obstetrics During the Past Fifty Years.
Philip D. Wilson, New York, Follow-Up Study of the Use of Refrigerated Homogenous Bone in Orthopaedic Surgery.
Richard S. Hahn, Ann Arbor, Mich., Advances in Cardiac Surgery—The Caleb Fiske Oration.
Isidor S. Ravdin, Philadelphia, Precancerous Lesions of the Gastrointestinal Tract.
Robert W. Wilkins, Boston, Current Medical Therapy of Hypertension.
Benjamin M. Gasul, Chicago, Simplified Rules for the Diagnosis of Congenital Malformations of the Heart Amenable to Surgery.
Kirby S. Howlett Jr., Shelton, Conn., Medical Treatment of Pulmonary Tuberculosis.
Gustaf E. Lindskog, New Haven, Conn., Present Trends in the Surgery of Pulmonary Tuberculosis.

Dr. John E. Donley, Providence, will deliver the annual Charles V. Chapin oration on Wednesday.

TEXAS

State Medical Meeting in San Antonio.—The annual session of the Texas Medical Association will be held in San Antonio May 2-5 under the presidency of Dr. George Turner, El Paso. Presentations by guest speakers include:

What Makes the Doctor-Patient Relationship Tick. Better PR—The Detour Around Socialized Medicine, William A. Richardson, Rutherford, N. J.
Changing Concepts in the Purpuric Syndrome, Harold D. Palmer, Denver.
Role of Radiation Therapy in Treatment of Lymphomas. Radiation Therapy in Management of Cutaneous Hemangiomas, Simeon T. Cantril, Seattle.
Cholecystic Disease and Its Complications, Robert L. Sanders, Memphis, Tenn.
Midforceps Operations, E. Stewart Taylor, Denver.
Myxedema (motion picture), George T. Harrell Jr., Gainesville, Fla.

Other motion pictures include "Congenital Malformations of the Heart; Cyanotic Congenital Heart Disease," "Steps of Age," "Tuberculosis of the Larynx, Tracheobronchial Tree, and Esophagus," "Fractures of the Humerus," and "Surgical Approaches to the Sternoclavicular and Acromioclavicular Joints." The following symposiums are scheduled: Problems in Blood

Transfusion, Geriatrics, and Lesions of the Upper Gastrointestinal Tract. Tuesday morning there will be a panel discussion on acute infections complicating pregnancy.

Dr. William A. Hudson, Detroit, will deliver the Hendricks memorial address before the Texas chapter of the American College of Chest Physicians, Sunday, 11 a. m. The Texas Diabetes Association will present the panel discussion "The Newly Discovered Diabetic" as a part of its program Sunday. On Monday Dr. Myron Prinzmetal, Beverly Hills, Calif., guest speaker of the Texas Heart Association will discuss "Treatment of Cardiac Arrhythmias" at the luncheon meeting and will present "Uses and Limitations of the Electrocardiogram in the Diagnosis of Coronary Artery Disease" at 3:40 p. m. Dr. Tracy J. Putnam, Beverly Hills, Calif., will be guest speaker for the Texas Neuropsychiatric Association, Sunday, presenting "Advances in the Treatment of Epilepsy" at 11 a. m. and "Frontothalamic Radiotomy with Radioactive Materials" at 3:30 p. m. Dr. M. Digby Leigh, Vancouver, Canada, will talk on pediatric anesthesia before the Texas Society of Anesthesiologists on Sunday. Dr. William T. Green, Boston, will discuss "Discrepancy in Leg Length and Growth of the Extremity" when he addresses the Texas Orthopedic Association, Monday morning. Dr. Warner F. Bowers, Colonel, M. C., AUS, Fort Sam Houston, has been invited to present "Surgical Correction of Rectal Prolapse" before the Texas Society of Gastroenterologists and Proctologists on Monday.

VIRGINIA

Trudeau Society Organized.—Dr. Edward S. Ray of the Medical College of Virginia, Richmond, was elected president of the Virginia Trudeau Society at its organization meeting in Richmond, Dec. 12, 1953. Dr. Everett C. Drash of the University of Virginia School of Medicine, Charlottesville, was named vice-president, and Dr. William E. Apperson of the state division of tuberculosis control in Richmond, secretary-treasurer. The society was formed to provide physicians with current information on the detection and control of pulmonary and thoracic diseases.

General Practitioners Meet in Richmond.—The Virginia Academy of General Practice will hold its annual meeting at the Jefferson Hotel, Richmond, May 5-7. The scientific sessions will open Thursday morning with a panel discussion on diabetes for the general practitioner, which will be followed by a clinical pathological conference. "The Management of Menstrual Disorders" will be presented by Dr. Robert B. Greenblatt, University of Georgia School of Medicine, Augusta. The afternoon session will open with "Anticipatory Medicine in Later Maturity" by Dr. Edward J. Stieglitz, Washington, D. C. Friday morning, presentation of "The Use and Abuse of Antibiotics" by Dr. Erwin Neter, Children's Hospital, Buffalo, will precede a panel discussion on cancer detection. Friday afternoon will be devoted to the following cardiac symposium sponsored by the Virginia Heart Association:

Congenital Heart Disease, Helen B. Taussig, Baltimore.
Cardiac Arrhythmias, Julian R. Beckwith, Charlottesville.
Differentiation of Cardiac and Pulmonary Dyspnea, John L. Patterson Jr., Richmond.
Arteriosclerotic Heart Disease, J. Murray Kinsman, Louisville, Ky.

Wednesday morning the Virginia chapter of the American College of Chest Physicians will hold a meeting during which there will be a panel discussion on home care in tuberculosis. Panel discussion will follow "Diabetic Neuropathy" by Dr. Ralph Wayne Rundles, Duke Hospital, Durham, N. C., the concluding presentation on the program of the Virginia Diabetes Association, Wednesday afternoon.

WEST VIRGINIA

Public Relations Lecture in Parkersburg.—Leo E. Brown, Chicago, Director of the A. M. A. Department of Public Relations, will be the guest speaker at a "Hospital Week" dinner in Parkersburg, May 6. The dinner is being sponsored by the Parkersburg Chamber of Commerce.

Psychiatric Exhibit.—The superintendents of the mental institutions of West Virginia will join with Dr. Walter Freeman, Washington, D. C., in sponsoring an exhibit at the annual meeting of the American Psychiatric Association in St. Louis, May 3-7. The exhibit will consist of data collected at state institutions concerning the transorbital lobotomies performed on selected patients by Dr. Freeman with the cooperation of members of the staffs at various hospitals. The operations have been performed with the full authorization and support of the West Virginia Board of Control. The data include information concerning clinical improvement, release of patients from the hospitals, saving in cost to the state, and the over-all value of the surgical treatment in certain types of hospital patients who had not responded to other forms of therapy.

Annual General Practitioners' Meeting.—The annual scientific assembly of the West Virginia Academy of General Practice will be held at the Daniel Boone Hotel, Charleston, May 1-2. Saturday morning, the Medical College of Virginia, Richmond, will present "Present Concept of the Management of Hepatitis and Cirrhosis" (Dr. Charles M. Caravati); "Friedlanders Pneumonia —Differential Diagnosis" (Dr. Harry Walker); "Officer Management of the Neurasthenic Patient" (Dr. William T. Thompson Jr.); and a medical forum, for which Dr. Carl B. Hall, Charleston, will serve as moderator. The Saturday afternoon program, presented by the Cleveland Clinic, will consist of "Diseases of the Colon" by Dr. Rupert B. Turnbull Jr.; "Diseases of Biliary Tract and Pancreas," a color film on cholangiography, by Dr. Stanley O. Hoerr; and "Treatment of Diseases of the Thyroid" by Dr. George Crile Jr. A panel discussion on surgery of the gastrointestinal tract will conclude the afternoon session. A social hour will precede the banquet, 7 p. m., at which the guest speaker, Dr. Andrew S. Tomb Jr., Victoria, Texas, will deliver the Wyeth memorial lecture honoring the late Dr. Tyler R. Boling of Grantsville. Dr. Tomb's subject will be "The Role of the General Practitioner in the Changing World." A pediatric forum will conclude the following program presented Sunday morning by the Children's Hospital, Pittsburgh:

Some Common Pediatric Problems, Lee W. Bass.
Misshapened Head, Anthony F. Susen.
Management of Convulsions in Childhood, Irvin Chamovitz.

The final program, Sunday afternoon, will be given by Johns Hopkins Hospital. Dr. Edmund R. Novak will discuss "Functional Bleeding"; Dr. J. Donald Woodruff, "Postmenopausal Bleeding"; Dr. John Whitridge Jr., "Maternal Deaths—Some Practical Lessons They Teach Us"; and Dr. John M. Spence Jr., "Reasonable Childbirth: A Discussion of Obstetric Analgesia and Anesthesia."

WISCONSIN

Lecture by Dr. Guthrie of Scotland.—The Medical School Society of the University of Wisconsin presented a lecture "Ancient Drugs and Remedies" by Dr. Douglas Guthrie, lecturer on the history of medicine at the University of Edinburgh, Scotland, April 6, in the auditorium, Service Memorial Institute, Madison.

Phi Delta Epsilon Lecture.—Alpha Lambda chapter of the Phi Delta Epsilon fraternity at the Marquette University School of Medicine, Milwaukee, will have as guest speaker for the annual lecture, May 5, in the auditorium of the school of medicine Dr. Louis J. Soffer, attending physician and head of the department of endocrinology, the Mount Sinai Hospital, New York. His subject will be "The Adrenal Cortical Hyperfunction, a Clinical and Physiological Consideration."

Industrial Health Clinic.—This clinic will be held at the Ambassador Hotel, Milwaukee, May 5, under the sponsorship of the Industrial Health Committee, Medical Society of Milwaukee County; Industrial Hygiene Division, Wisconsin State Board of Health; Industrial Health Committee, State Medical Society of Wisconsin; and Industrial Nurses Section, Wisconsin State Nurses Association. The following program will be given after the luncheon at the hotel:

Twenty Years Experience in Medical Control of Foundry Workers' Silicosis, Oscar A. Sander, Milwaukee.
Recurrent Hernia—Repair with Skin Implants (with colored motion pictures), Gervase S. Flaherty, South Milwaukee.
Importance of the General Practitioner in Part-Time Inplant Medical Programs, Charles F. Shook Sr., Toledo, Ohio.
Hazards in the Use and Formulation of Insecticides, Frank Princi, Cincinnati.

GENERAL

TV Program on Rabies.—CBS-TV's documentary series, "The Man Behind the Badge," will have as its message on May 2, 9:30 p. m. (EST), "See your doctor immediately after a dog-bite!" The story concerns the search for an unidentified person who vanished after being bitten by a rabid dog. The program traces the efforts of a public health inspector to save the unknown man's life.

Symposium on Venoms.—The American Association for the Advancement of Science invites contributions for a symposium on venoms, to be held at the annual meeting, Dec. 26-31, at the University of California, Berkeley. The venoms of poisonous reptiles, arthropods, fishes, and other animals will be discussed, and all phases of the subject will be covered. Abstracts should be submitted to Nandor Porges, Ph.D., 1301 E. Barringer St., Philadelphia, no later than June 1, for inclusion in the program.

American Society for Clinical Investigation.—The annual meeting of the American Society for Clinical Investigation will be held at the Steel Pier Theater, Atlantic City, N. J., May 3, under the presidency of Dr. Carl V. Moore, St. Louis. Dr. Moore will deliver the presidential address at 9 a. m. and will serve as chairman for the morning program, consisting of 14 presentations. Dr. Paul B. Beeson, Atlanta, Ga., will be chairman for the afternoon program, during which 13 papers will be presented.

American Pediatric Society.—The American Pediatric Society will hold its annual meeting May 3-5 at the Inn, Buck Hill Falls, Pa., under the presidency of Dr. Rustin McIntosh, New York. Twenty-nine papers will be presented and 21 read by title. Included will be discussions on hypernatremia in infants, metabolic observations in newborn infants of diabetic mothers, death due to accidental poisoning in young children, familial dysautonomia, evaluation of the efficacy of gamma globulin in the prophylaxis of paralytic poliomyelitis, and newer immunologic concepts of smallpox vaccination.

New Radiation Journal.—Plans have been completed for the publication of a new journal, *Radiation Research,* as the official organ of the Radiation Research Society. Titus C. Evans, Ph.D., State University of Iowa College of Medicine, Iowa City, is the managing editor. The journal will publish original articles dealing with all phases of radiation research to promote the integration of the disciplines of physics, chemistry, biology, and medical research as they are concerned with the effects of radiation on matter. Academic Press, 125 E. 23rd St., New York 10, is the publisher.

Residency Posts.—The Indian Medical Association requests offers from recognized hospitals for residency posts in all specialties for doctors from India—men and women—specially selected for graduate training in U. S. hospitals. These physicians will have a good command of English, spoken and written. The hospitals must be approved by the U. S. State Department for Exchange Visitor Program. Communications from U. S. hospitals should be sent direct, by air mail, to the Honorary Secretary, Indian Medical Association, "Hanging Bridge," Daryaganj, Delhi (India), giving offers of posts, terms of appointment, etc.

Industrial Medical Meeting.—The annual meeting of the Western Industrial Medical Association will be held May 8 at the Biltmore Hotel, Los Angeles. Physicians, nurses, and others interested are invited to the full day's program on industrial medical, surgical, and administrative problems. Panel discussions, "Industrial Cardiac Problem" and "Industrial Back Problem," are scheduled for the morning session. The afternoon will be devoted to panel discussion of "Medical Administrative Problems in Unemployment Disability Insurance." There will be no registration fee. For information write to Western Industrial Medical Association, Room 220, 740 S. Olive St., Los Angeles 14.

Association of American Physicians.—The Association of American Physicians will hold the annual meeting at the Chalfonte-Haddon Hall, Atlantic City, N. J., May 4-5. Twenty-nine presentations have been scheduled, and 23 will be read by title. Dr. Alan Gregg, Big Sur, Calif., will address the association dinner Tuesday, 7:30 p. m. (tickets should be obtained from Dr. W. Barry Wood Jr., 600 S. Kingshighway, St. Louis 10). Wednesday morning the George M. Kober medal will be presented to Dr. Herbert S. Gasser, New York, Nobel prize winner in 1944, who last year retired as director of the Rockefeller Institute for Medical Research (THE JOURNAL, July 18, 1953, p. 1154).

Conference on Health in Colleges.—The fourth National Conference on Health in Colleges will convene at the Hotel Statler, New York, May 5-8. Forty-six national groups will sponsor the conference, which will have as its theme "Teamwork in Meeting the Health Needs of College Students." A panel of college presidents will discuss "The President Looks at the College Health Program," Wednesday, at 8 p. m. Dr. Howard A. Rusk, director, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, will address a luncheon meeting Friday noon. The American College Health Association will be host to conference participants at this luncheon.

Examination of Orthoptic Technicians.—The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in July and September. The written examination, nonassembled, will take place July 22 in certain assigned cities and offices. The oral and practical examinations will be on Sept. 18 in New York, just preceding the meeting of the American Academy of Ophthalmology and Otolaryngology. Applications for examination will be received by the office of the Secretary of the American Orthoptic Council, Dr. Frank D. Costenbader, 1605 22nd St., N.W., Washington 8, D. C., and must be accompanied by the examination fee of $30. Applications will not be accepted after June 1.

Survey of Graduate Student Population.—The National Science Foundation has asked about 500 American colleges and universities to participate in a survey of financial support available to graduate students. Information will be obtained on the number of (1) graduate students now taking advanced work leading either to masters' degrees or doctoral degrees, (2) fellowship holders, (3) teaching and research assistantships available to graduate students, (4) applications received for various classes of graduate support, and (5) unfilled positions for the current year, and on the amounts and sources of funds for fellowships and assistantships. Before issuing the questionnaire, which will be sent to all heads of graduate departments in the natural sciences, the social sciences, and the humanities, the foundation is pretesting the questions at the George Washington University, Washington, D. C., the University of Pennsylvania, Philadelphia, and the University of Indiana, Bloomington. The results of this pretesting survey will be incorporated with the final study.

Institute of Nutrition Presents Awards.—At the annual dinner of the American Institute of Nutrition during its meeting with the Federation of American Societies for Experimental Biology in Atlantic City, April 14, the Borden award in nutrition ($1,000 and a gold medal) was presented jointly to Agnes F. Morgan, Ph.D., chairman of the division of home economics, University of California, Berkeley, and Arthur H. Smith, Ph.D., professor of physiological chemistry, Wayne University College of Medicine, Detroit, "for their important investigations on the effect of heat on the nutritive value of milk proteins and for their many other research contributions during the past 30 years concerning the nutritive significance of other components of milk and milk products." The Osborne and Mendel award was presented to Leonard A. Maynard, Ph.D., director of the School of Nutrition, Cornell University, Ithaca, "for his fundamental investigations on biochemical and nutritional aspects of lipid metabolism and of lactation and for his many contributions as a teacher, administrator, and public servant in the field of nutrition."

Scholarships in Plastic and Reconstructive Surgery.—The Foundation of the American Society of Plastic and Reconstructive Surgery announces regulations for the fifth annual scholarship contest. The contest in junior classification is

restricted to residents in training and to plastic surgeons in practice no longer than five years. Two main prizes are offered, each consisting of a three-months' plastic surgery scholarship with full maintenance in a number of selected leading services, in the United States and abroad. The subject matter of the essay must be the result of some original research in plastic and reconstructive surgery. The thesis should be about 5,000 words in English. Work previously published, wholly or in part, is not acceptable. Expenses of travel between the services will be allotted. A silver plaque or a certificate of honorable mention is also offered for a winning essay in senior classification to contestants active in practice of plastic and reconstructive surgery for more than five years. Manuscripts will not be accepted by the award committee after July 1. For information, write to the Award Committee, c/o Dr. Jacques W. Maliniac, chairman, 30 Central Park South, New York.

Thoracic Surgeons Meet in Montreal.—The American Association for Thoracic Surgery will hold its annual meeting May 3-5 at the Sheraton-Mt. Royal Hotel in Montreal, Canada, under the presidency of Dr. Emile F. Holman, San Francisco. Of the 42 papers to be presented, 15 constitute the thoracic surgical forum, which will be held Tuesday morning. F. Cyril James, principal and vice-chancellor, McGill University, Montreal, will be guest of honor at the banquet, Tuesday, 6:30 p. m. Single author presentations by invitation include:

Opportunities for Research in Thoracic Surgery with the Use of Tissue Culture Methods, Charles M. Pomerat, Ph.D., Galveston, Texas.

Physiology of Hypothermia and Its Application to Cardiac Surgery, Wilfred G. Bigelow, Toronto, Canada.

Experimental Pedunculated Flaps Used for Cardiac Abnormalities in Dogs, Arnold E. Botwin, Kansas City, Kan.

Synchronous Combined Abdomino-Right Thoracic Approach for Carcinoma of the Upper Thoracic Esophagus, Hawley H. Seiler, Tampa, Fla.

Drs. William R. Waddell, Ronald C. Sniffen, and Lawrence L. Whytehead (traveling fellow of the association), Boston, have been invited to open the scientific sessions with the paper "Lipid Deposition in Pulmonary Tissue."

Association of the History of Medicine.—The annual meeting of the American Association of the History of Medicine will be held at Yale University School of Medicine, 333 Cedar St., New Haven, Conn., May 6-8. On May 5, 8:15 p. m., Dr. Douglas Guthrie, Edinburgh, Scotland, will deliver the Woodward lecture, "The Three Alexander Monros: Their Influence and Their Writing." Thursday, 8 p. m., there will be a symposium on the rise of statistics in medicine and Friday, 9:30 a. m. to 12 noon, a symposium on the interrelations of chemistry and medicine. The Yale University School of Medicine will be host at a tea in the Beaumont Room, Friday, 5:30 p. m. Friday, 8:30 p. m., the Beaumont Medical and Nathan Smith clubs will be hosts at an informal gathering in the library. On Friday at 8 p. m. Prof. A. C. Crombie, university lecturer in the history of science at Oxford, will discuss "Concepts of Science Before and After Galileo." Saturday, 9:30 a. m. to 12 noon, a symposium will be presented on the historical impact of curative medicine on society. At 4:15 p. m., Dr. Esmond R. Long, Philadelphia, will deliver the Garrison lecture, "The Decline of Chronic Infectious Disease." The annual dinner (informal) will be held at the New Haven Lawn Club, Saturday, 7 p. m.

Association of Public Health Physicians.—The American Association of Public Health Physicians was organized in Chicago, Feb. 6. A temporary constitution and bylaws were adopted, and interim officers were elected to serve until the first meeting of the house of delegates, in Buffalo, Oct. 11, in conjunction with the annual meeting of the American Public Health Association. Membership in the association will be limited to doctors of medicine employed full time by a local, state, or federal health agency and who are engaged in the establishment, operation, or maintenance of health services. Members must also be members in good standing of both the American Medical Association and the American Public Health Association. Annual membership dues are $5. Delegates will be selected and certified by the local branches of the association for each state or territory. The interim officers of the association elected at the Chicago meeting are as follows: president, Dr. E. Bruce Underwood, state commissioner of health, Louisville, Ky.; vice-president, Dr. Edward R. Krumbiegel, commissioner of health, Milwaukee; secretary, Dr. Gerald R. Clark, state director of public health, Santa Fe, N. Mex.; and treasurer, Dr. Leon Banov, director, Charleston County Health Department, Charleston, S. C. For information or membership application forms write to: Dr. Gerald R. Clark, Secretary, American Association of Public Health Physicians, Box 711, Santa Fe, N. Mex.

Society News.—Newly elected officers of the Midwest Section of the **Association for Research in Ophthalmology** include Dr. Paul W. Miles, St. Louis, chairman, and Dr. Arlington C. Krause, Chicago, vice-chairman. Dr. Frank W. Newell, Chicago, is secretary-treasurer.——At the annual meeting of the **American Academy of Occupational Medicine** Dr. Arthur F. Mangelsdorff, Bound Brook, N. J., assumed the presidency; Dr. Frank Princi, Cincinnati, was elected vice-president; and Dr. Irvine R. Tabershaw, New York, and Dr. Leonard J. Goldwater, New York, were reelected treasurer and secretary, respectively.——Newly elected officers of the **Society of University Surgeons** include Dr. Earle B. Mahoney, Rochester, N. Y., president; Dr. Richard L. Varco, Minneapolis, president-elect; Dr. C. Rollins Hanlon, St. Louis, secretary; and Dr. Frederick W. Cooper Jr., Emory University, Ga., treasurer.——At the annual meeting of the **American Academy of Forensic Sciences** in Chicago Dr. Abraham W. Freireich, Malvern, N. Y., was elected president; Fred Inbau, LL.B., Chicago, vice-president and president-elect; and Dr. Walter J. R. Camp, Chicago, secretary-treasurer.——The **American College of Hospital Administrators** formerly located at 22 E. Division St., Chicago, has moved to new headquarters in the North Michigan Building, 620 N. Michigan Ave., Chicago 11. Officers of the college include Dr. Merrill F. Steele, Cincinnati, president; Dr. Albert C. Kerlikowske, Ann Arbor, Mich., president-elect; and Mr. Dean Conley, Chicago, executive director.——The **American Society for the Study of Sterility** will hold its annual meeting at the St. Francis Hotel, San Francisco, June 18-20, preceding the A. M. A. Annual Meeting. All previous plans for convening in New Orleans have been cancelled.

CANADA

Symposium on Acute Infectious Diseases.—The Regina and District Medical Society announces a symposium on acute infectious diseases at the Hotel Saskatchewan, Regina, Saskatchewan, May 7. Dr. David E. Rodger, Regina, will be moderator for the morning session and Dr. George R. Walton, medical health officer of Regina, for the afternoon session. The following presentations will be made:

Progress in Immunization Against Poliomyelitis, Dorothy M. Horstmann, New Haven, Conn.

Diagnosis and Treatment of Virus Pneumonia, Lennox G. Bell, Winnipeg, Manitoba.

Influenza and the Common Cold, Gordon Meiklejohn, Denver.

Diagnosis and Treatment of Meningitis in Children, Archibald L. Hoyne, Chicago.

Infectious Hepatitis, Martin M. Hoffman, Montreal, Quebec.

Use and Abuse of Antibiotics, Keith J. R. Wightman, Toronto, Ontario.

Dr. James C. Armit, past president of the Regina and District Medical Society, will serve as chairman for a luncheon at 12:15 p. m. The Lederle Laboratories Division of the North American Cyanamid Limited will act as co-sponsor of the symposium with the society. No fee is required for attendance at social or scientific sessions. Wives of physicians are welcome.

FOREIGN

Meeting of Surgeons.—The Association of Surgeons of Great Britain and Ireland will hold its annual meeting May 13-15 in Leeds, where on Thursday afternoon Dr. Evarts A. Graham, St. Louis, chairman, Board of Regents, American College of Surgeons, will lay a wreath in memory of Lord Moynihan at the General Infirmary at Leeds. The Moynihan lecture will be delivered Friday, 3:30 p. m., in the Riley-Smith Hall, University of Leeds, by Dr. Albert Blalock, Baltimore, who will speak on the expanding scope of cardiovascular surgery. Among the topics for discussion at the meeting are ulcerative colitis, exophthalmos, and duodenal diverticula.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1954 Annual Meeting, San Francisco, June 21-25.
1954 Clinical Meeting, Miami, Florida, Nov. 29-Dec. 2.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.
1956 Annual Meeting, Chicago, June 11-15.

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, San Francisco, June 19. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

AMERICAN ASSOCIATION FOR CLEFT PALATE REHABILITATION, Webster Hall Hotel, Pittsburgh, May 14-15. Dr. Jack Matthews, 1617 Cathedral of Learning, University of Pittsburgh, Pittsburgh 13, Secretary.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, Shawnee Inn, Shawnee-on-Delaware, Pa., May 26-28. Dr. John Taylor, 2 East 54th St., New York 22, Secretary.

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE, Hotel Taft, New Haven, Conn., May 6-8. Dr. Samuel X. Radbill, 7043 Elmwood Ave., Philadelphia 42, Secretary.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY, Marlborough-Blenheim Hotel, Atlantic City, N. J., May 18-22. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

AMERICAN ASSOCIATION FOR THORACIC SURGERY, Sheraton-Mt. Royal Hotel, Montreal, Canada, May 3-5. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION, Hotel Statler, Boston, May 25-26. Dr. J. Johnson Putney, 255 South 17th St., Philadelphia 3, Secretary.

AMERICAN COLLEGE OF CARDIOLOGY, Conrad Hilton Hotel, Chicago, May 27-29. Dr. Philip Reichert, 140 West 57th St., New York 19, Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Fairmont Hotel, San Francisco, June 17-20. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Executive Director.

AMERICAN DIABETES ASSOCIATION, San Francisco, June 19-20. Mr. J. Richard Connelly, 11 West 42d St., New York 36, Executive Director.

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Hotel Claridge, Atlantic City, N. J., June 11-13. Dr. W. T. Liberson, Veterans Administration Hospital, Northampton, Mass., Secretary.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Haddon Hall, Atlantic City, N. J., May 2. Dr. Lawrence E. Hinkle Jr., 525 East 68th St., New York 21, Secretary.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION, San Francisco, June 18-19. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

AMERICAN GASTROSCOPIC SOCIETY, Mark Hopkins Hotel, San Francisco, June 20. Dr. John Tilden Howard, 12 East Eager St., Baltimore 2, Secretary.

AMERICAN GERIATRICS SOCIETY, Hotel Fairmont, San Francisco, June 17-19. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

AMERICAN GYNECOLOGICAL SOCIETY, The Homestead, Hot Springs, Va., May 20-22. Dr. John I. Brewer, 104 South Michigan Blvd., Chicago, Secretary.

AMERICAN LARYNGOLOGICAL ASSOCIATION, Hotel Statler, Boston, May 27-28. Dr. Harry P. Schenck, 326 South 19th St., Philadelphia 3, Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, Hotel Statler, Boston, May 25-27. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, N. Y., Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, San Francisco, June 18-20. Dr. Charna G. Perry, 691 Bridgeway Blvd., Sausalito, Calif., Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Hotel Claridge, Atlantic City, N. J., June 14-16. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, Many Glacier Hotel, Glacier Park, Mont., June 16-18. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, Mount Washington Hotel, Bretton Woods, N. H., June 6-9. Dr. George C. Eaton, 4 East Madison St., Baltimore 2, Secretary.

AMERICAN OTOLOGICAL SOCIETY, Hotel Statler, Boston, May 23-24. Dr. John R. Lindsay, 150 East 59th St., Chicago 37, Secretary.

AMERICAN PEDIATRIC SOCIETY, The Inn, Buck Hill Falls, Pa., May 3-5. Dr. A. C. McGuinness, 237 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Hotel Statler, Los Angeles, June 2-5. Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y., Secretary.

AMERICAN PSYCHIATRIC ASSOCIATION, St. Louis, May 3-7. Dr. R. Finley Gayle Jr., 6300 Three Chopt Road, Richmond 21, Va., Secretary.

AMERICAN RHEUMATISM ASSOCIATION, St. Francis Hotel, San Francisco, June 18-19. Dr. William H. Kammerer, 33 East 61st Street, New York 21, Secretary.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION, Haddon Hall, Atlantic City, N. J., May 3. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, St. Francis Hotel, San Francisco, June 18-20. Dr. Herbert H. Thomas, 920 South 19th St., Birmingham, Ala., Secretary.

AMERICAN TRUDEAU SOCIETY, The Ambassador, Atlantic City, N. J., May 17-21. Dr. William G. Childress, 1790 Broadway, New York 19, Secretary.

AMERICAN UROLOGICAL ASSOCIATION, The Waldorf-Astoria, May 31-June 3. Dr. Charles deT. Shivers, 121 South Illinois Ave., Atlantic City, N. J., Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS, Chalfonte-Haddon Hall, Atlantic City, N. J., May 4-5. Dr. W. Barry Wood Jr., 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 9-13 Mr. John Hunton, 450 Sutter St., San Francisco 8, Executive Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, Atlantic City, N. J., May 17-20. Rev. John J. Flanagan, 1438 South Grand Blvd., St. Louis 4, Director.

CONFERENCE OF PRESIDENTS AND OTHER OFFICERS OF STATE MEDICAL ASSOCIATIONS, The Palace, San Francisco, June 20. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, D. C., Secretary.

GEORGIA, MEDICAL ASSOCIATION OF, Hotel Dempsey and Macon Auditorium, Macon, May 2-5. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

HAWAII MEDICAL ASSOCIATION, Maybel Smyth Bldg., Honolulu, May 13-16. Dr. Samuel L. Yee, 510 S. Beretania St., Honolulu 13, Secretary.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 13-16. Dr. Robert S. McKean, 364 Sonna Bldg., Boise, Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 18-21. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

KANSAS MEDICAL SOCIETY, Hotel Jayhawk, Topeka, May 2-6. Dr. D. D. Vermillion, 315 West Fourth St., Topeka, Secretary.

LOUISIANA STATE MEDICAL SOCIETY, Roosevelt Hotel, New Orleans, May 20-22. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

MAINE MEDICAL ASSOCIATION, The Samoset, Rockland, June 13-15. Mr. W. Mayo Payson, 142 High St., Portland 3, Executive Secretary.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 18-20. Dr. Robert W. Buck, 22 Fenway, Boston 15, Secretary.

MEDICAL LIBRARY ASSOCIATION, Statler Hotel, Washington, D. C., June 15-18. Miss Audrey L. Kargus, St. Louis Medical Society, 3839 Lindell Blvd., St. Louis 8, Secretary.

MEDICAL SURGICAL CONFERENCE, Meadow Lark Country Club, Great Falls, Mont., June 14-15. Dr. John A. Layne, Box 911, Great Falls, Mont., Chairman.

MINNESOTA STATE MEDICAL ASSOCIATION, Hotel Duluth, Duluth, June 7-9. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

MISSISSIPPI STATE MEDICAL ASSOCIATION, Hotel Heidelberg, Jackson, May 11-13. Mr. R. B. Kennedy, 507 First Federal Bldg., Jackson, Executive Secretary.

NATIONAL CONFERENCE ON HEALTH IN COLLEGES, Hotel Statler, New York, May 5-8. Miss Charlotte V. Leach, 12th Floor, 1790 Broadway, New York 19, Secretary.

NATIONAL TUBERCULOSIS ASSOCIATION, Ambassador, Chelsea and Ritz-Carlton Hotels, Atlantic City, N. J., May 17-21. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

NEBRASKA STATE MEDICAL ASSOCIATION, Hotel Cornhusker, Lincoln, May 10-13. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

NEW JERSEY, MEDICAL SOCIETY OF, Haddon Hall, Atlantic City, May 16-19. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

NEW MEXICO MEDICAL SOCIETY, Hotel LaFonda, Santa Fe, May 13-15. Mr. R. R. Marshall, 221 West Central Ave., Albuquerque, Executive Secretary.

NEW YORK, MEDICAL SOCIETY OF THE STATE OF, Hotel Statler, New York, May 10-14. Dr. Walter P. Anderton, 386 Fourth Avenue, New York 16, Secretary.

NORTH CAROLINA, MEDICAL SOCIETY OF THE STATE OF, Hotel Carolina, Pinehurst, May 3-5. Dr. Millard D. Hill, 203 Capital Club Bldg., Raleigh, Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Grand Forks, May 1-4. Mr. Lyle A. Limond, Box 1198, Bismarck, Executive Secretary.

OKLAHOMA STATE MEDICAL ASSOCIATION, Municipal Auditorium, Oklahoma City, May 9-12. Mr. R. H. Graham, 1227 Classen Drive, Oklahoma City, Executive Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:
NORTHERN CALIFORNIA AND NEVADA, San Francisco, June 16. Dr. Stacy R. Mettier, University of California Hospital, San Francisco 22, Governor.

RHODE ISLAND MEDICAL SOCIETY, Rhode Island Medical Society Library, Providence, May 5-6. Dr. Thomas Perry Jr., 106 Francis St., Providence 3, Secretary.

SOCIETY OF AMERICAN BACTERIOLOGISTS, William Penn Hotel, Pittsburgh, May 2-7. Dr. John Hays Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

SOCIETY OF BIOLOGICAL PSYCHIATRY, Claridge Hotel, Atlantic City, N. J., June 13. Dr. George N. Thompson, 2010 Wilshire Blvd., Los Angeles 5, Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Clift Hotel, San Francisco, June 19-20. Dr. Herman Beerman, 255 South 17th St, Philadelphia 3, Secretary.

SOCIETY FOR PEDIATRIC RESEARCH, Buck Hill Falls Inn, Buck Hill Falls, Pa., May 4-6. Dr. Sydney S. Gellis, 330 Brookline Ave., Boston 15, Secretary.

SOCIETY FOR VASCULAR SURGERY, Mark Hopkins Hotel, San Francisco, June 20. Dr. George D. Lilly, 333 Ingraham Bldg., Miami 32, Fla., Secretary.

SOUTH CAROLINA MEDICAL ASSOCIATION, Ocean Forest Hotel, Myrtle Beach, May 11-13. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Marvin Hughitt Hotel, Huron, May 16-18. Mr. J. C. Foster, 300 First National Bank Bldg., Sioux Falls, Secretary.

SOUTHWEST ALLERGY FORUM, Roosevelt Hotel, New Orleans, May 9-11. Dr. Stanley Cohen, S. W. Allergy Forum, 1441 Delachaise St., New Orleans 15, Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Sherman Hotel, Chicago, May 1-3. Mr. Russell F. Staudacher, 510 N. Dearborn St., Chicago 10, Executive Secretary.

TEXAS MEDICAL ASSOCIATION, Gunter Hotel, San Antonio, May 3-5. Dr. J. M. Travis Sr., 1801 Lamar Blvd., Austin, Secretary.

UTAH STATE MEDICAL ASSOCIATION, Ogden, May 26-28. Dr. Homer E. Smith, 42 S. Fifth East St., Salt Lake City 2, Secretary.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION, Olympic Hotel, Seattle, May 9-12. Mrs. L. Amy Darter, Division of Laboratories, State Dept. of Public Health, Berkeley, Calif., Secretary.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 8. Dr. Edward J. Zaik, 740 S. Olive St., Los Angeles 14, Secretary.

WYOMING STATE MEDICAL SOCIETY, Kalif Temple, Sheridan, June 7-9. Dr. Royce D. Tebbet, Box 1252, Cheyenne, Secretary.

FOREIGN AND INTERNATIONAL

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

BRITISH MEDICAL ASSOCIATION, Glasgow, Scotland, July 1-9, 1954. Dr. A. Macrae, B.M.A. House, Tavistock Square, London, W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 14-18, 1954. Dr. T. C. Routley, 244 St. George St., Toronto 5. Ontario, Canada, General Secretary.

CONFERENCE OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, Madrid, Spain, Sept. 26-Oct. 2, 1954. Secretariat, Escuela de Tisiologia, Ciudad Universitaria, Madrid, Spain.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS, New York, N. Y., U. S. A., Sept. 12-17, 1954. Professor Franceschetti, 2 Avenue Mirmot, Geneva, Switzerland, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE BRONCHI, Geneva, Switzerland, June 5-6, 1954. Professor A. Montandon, Clinique Universitarie d O.R.L., Hôpital Cantonal, Geneva, Switzerland, Chairman.

CONGRESS OF INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY, Vichy and Paris, France, Sept. 26, 1954. For information write: Dr. Giulio Ammirandoli, Via Della Torretta 11, Montecatini Terme, Italy.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Edinburgh, Scotland, July 9-10, 1954. For information address: Mr. A. J. Slessor, Department of Surgery, University New Building, Edinburgh 8, Scotland.

INTER-AMERICAN SESSION, AMERICAN COLLEGE OF SURGEONS, R.M.S. Mauretana, Lima, Peru, S. A., Jan. 11-15, 1955. Dr. Moacyr Eyck Alvaro, 1151 Conselacao, Sao Paulo, Brazil, S. A., Chairman.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Ambassador Hotel, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S.W., Rochester, Minn., U. S. A.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 20-24, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Dr. Robert A. Moore, Washington University School of Medicine, St. Louis 10, Mo., U. S. A., Chairman, Committee on Arrangements.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS ON GROUP PSYCHOTHERAPY, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

INTERNATIONAL CONGRESS ON GYNECOLOGY AND OBSTETRICS, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF HEMATOLOGY, Paris, Sept. 6-11, 1954. Dr. Jean Bernard, 86 rue d'Assas, Paris 6e, France, Secretary.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE, Rome and Salerno, Italy, Sept. 13-20, 1954. For information write: Segreteria XIV Congresso Internazionale di Storia della Medicina, Instituto di Storia della Medicine, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF HYDATID DISEASE, Madrid, Spain, Oct. 5-8, 1954. Dr. Jesus Calvo Melendro, Hospital Provincial, Sorea, Spain, Secretary General.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Opatija, Yugoslavia, May 8-13, 1954. Prof. C. Plavsic, Zeleni venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INDUSTRIAL MEDICINE, Naples, Italy, Sept. 13-19, 1954. Professor Scipione Caccuri, Director, Institute of Industrial Medicine Policlinico, Naples, Italy, Chairman, Organizing Committee.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Stockholm, Sweden, Sept. 15-18, 1954. Professor Anders Kristenson, Karolinska Sjukhuset, Stockholm 60, Sweden, Secretary-General.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF NUTRITION, Amsterdam, Netherlands, Sept. 13-17, 1954. Dr. M. van Eekelen, Centraal Instituut voor Voedingsonderzoek T.N.O., 61 Catharynesingel, Utrecht, Netherlands, General Secretary.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY, University of Montreal and McGill University, Montreal, Canada, Sept. 9-11, 1954, and Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 12-17, 1954. Dr. William L. Benedict, 100 First Avenue Building, Rochester, Minn., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Berne, Switzerland, Aug. 30-Sept. 3, 1954. For information write: Professor M. Dubois, Isle-Hospital, Berne, Switzerland.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL INSTITUTE ON CHILD PSYCHIATRY, Toronto, Canada, Aug. 13-14, 1954. Miss Helen Speyer, International Association for Child Psychiatry, 1790 Broadway, New York 19, N. Y., U. S. A., Executive Officer.

INTERNATIONAL POLIOMYELITIS CONGRESS, University of Rome, Orthopedic Clinic, Rome, Italy, Sept. 6-10, 1954. Mr. Stanley E. Henwood, 120 Broadway, New York 5, N. Y., U. S. A., Executive Secretary.

INTERNATIONAL SOCIETY OF ANGIOLOGY, North American Chapter, Hotel Mark Hopkins, San Francisco, Calif., U. S. A., June 19, 1954. Dr. Henry Haimovici, 105 East 90th St., New York, N. Y., U. S. A., Secretary.

INTERNATIONAL SOCIETY OF BLOOD TRANSFUSION, Paris, France, Sept. 12-19, 1954. For information write: Colonel Julliard, Société Internationale de Transfusion Sanguine, 53 Boulevard Diderot, Paris 12e, France.

INTERNATIONAL SOCIETY FOR CELL BIOLOGY, Leiden, Netherlands, Sept. 2-9, 1954. Professor Peter J. Gaillard, University of Leiden, Leiden, Netherlands, Secretary.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Washington, D. C., U. S. A., Sept. 6-10, 1954. Professor Fred C. Roulet, Hebelstrasse 24, Basel, Switzerland, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, Ireland, July 7-10, 1954. Dr. P. J. Delaney, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

JAPAN MEDICAL CONGRESS, Kyoto University and Kyoto Prefectural Medical College, Kyoto, Japan, April 1-5, 1955. Dr. Mitsuharu Goto, University Hospital, Medical Faculty of Kyoto University, Kyoto, Japan, Secretary General.

LATIN AMERICAN CONGRESS ON GYNECOLOGY AND OBSTETRICS, Sao Paulo, Brazil, July 10-15, 1954. Prof. Dr. Jairo Ramos, av. Brigaderio Luiz Antonio, 278-8° andar, Sao Paulo, Brazil, Chairman of Organizing Committee of Medical Congresses.

LATIN AMERICAN CONGRESS ON MENTAL HEALTH, Sao Paulo, Brazil, July 17-22. For information address: Professor A. C. Pacheco e Silva, Avenida Brigadeiro Luiz Antonio 651, Sao Paulo, Brazil.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION CONGRESS, Lake Garda, Italy, Sept. 15-21, 1954. Dr. Ada Chree Reid, 118 Riverside Drive, New York 24, N. Y., U. S. A., President.

PAN AMERICAN CONGRESS OF CHILD WELFARE AND PEDIATRICS, Sao Paulo, Brazil, July 15-21, 1954. For information address: Dr. Jairo Ramos, Avenida Brigaderio Luiz Antonio 278-8° andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF GASTROENTEROLOGY, Sao Paulo, Brazil, July 19-24, 1954. For information address: Dr. Jairo Ramos, Avenida Brigadeiro Luiz Antonio 278-8° andar, Sao Paulo, Brazil.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY (Interim), Sao Paulo, Brazil, June 17-21, 1954. Dr. Moacyr E. Alvaro, Consolacao 1151, Sao Paulo, Brazil, President.

PAN AMERICAN HOMEOPATHIC MEDICAL CONGRESS, Hotel Gloria, Rio de Janeiro, Brazil, S. A., Oct. 2-13, 1954. Dr. Paul S. Schantz, 103 West Main St., Ephrata, Pa., U. S. A., Executive Secretary.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

SOUTH AMERICAN CONGRESS OF ANGIOLOGY, Sao Paulo, Brazil, July 1954. For information write: Dr. Rubens Carlos Mayall, Rua Senador Vergueiro 73, Rio de Janeiro, Brazil, S. A.

WORLD CONGRESS OF CARDIOLOGY, Washington, D. C., U. S. A., Sept. 12-18, 1954. Dr. L. W. Gorham, 44 East 23d St., New York 10, N. Y., U. S. A., Secretary-General.

WORLD CONGRESS OF INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Scheveningen-The Hague, Netherlands, Sept. 13-17, 1954. Secretariat: Miss H. P. Post, Pieter Lastmarkade 37, Amsterdam Z, Netherlands.

WORLD FEDERATION OF OCCUPATIONAL THERAPISTS, Edinburgh, Scotland, August 17, 1954.

WORLD MEDICAL ASSOCIATION, Rome, Italy, Sept. 26-Oct. 2, 1954. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Held in approved medical schools where there are five or more candidates. Dates: April 20-21 (Part II only); June 22-23; Sept. 7-8 (Part I only). Candidates may file examinations at any time but the National Board must receive them at least six weeks before the date of the examination they wish to take. New candidates should apply by formal registration; registered candidates should notify the board by letter. Sec., Dr. John P. Hubbard, 133 S. 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARIZONA:* *Examination.* Phoenix, April 21-23. *Reciprocity.* Phoenix, April 24. Sec., Dr. Maurice R. Richter, 2910 N. 7th Ave., Phoenix.

ARKANSAS:* *Examination.* Little Rock, June 10-11. Sec., Dr. Joe Verser, Harrisburg. *Eclectic.* Little Rock, June 11-12. Sec., Dr. O. L. Atkinson, 2528 Central Ave , Hot Springs National Park.

CALIFORNIA: *Written.* San Francisco, June 21-24; San Diego, Aug. 23-26; Sacramento, Oct. 18-21. *Oral.* San Francisco, June 19; San Diego, Aug. 21; Los Angeles, Nov. 20. *Oral and Clinical Examination for Foreign Medical School Graduates.* Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO:* *Examination.* Denver, June 8-9. Final date for filing applications is May 8. *Reciprocity.* Denver, April 13. Final date for filing applications was March 13. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT:* *Regular. Examination.* Hartford, July 13-14. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, July 13-14. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, July 13-15. *Reciprocity.* Dover, July 22. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA:* *Examination.* Washington, May 10-11. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D. C.

FLORIDA:* *Examination.* Jacksonville, June 27-29. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami.

GEORGIA: *Examination and Reciprocity.* Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

HAWAII: *Examination.* Honolulu, July 12-15. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: *Examination and Endorsement.* Boise, June 12-14. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

ILLINOIS: *Examination and Reciprocity.* Chicago, June 22-24, and Oct. 5-7. Supt. of Registration, Mr. Frederic B. Selcke, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June 16-18. Exec. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA:* *Examination.* Iowa City, June 14-16. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: *Examination and Reciprocity.* Kansas City, June 9-10. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, June 7-9. Address Mr. Raymond F. Nixon, Assistant Secretary, 620 S. 3rd St., Louisville 2.

MAINE: *Examination and Endorsement.* Augusta, July 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 15-18. Sec., Dr. E. H. Kloman, 1215 Cathedral St., Baltimore 1.

MASSACHUSETTS: *Examination.* Boston, July 13-16. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston.

MICHIGAN:* *Examination.* Detroit and Ann Arbor, June 1954. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

MISSISSIPPI: *Examination and Reciprocity.* Jackson, June. Asst. Sec , Dr. R. N. Whitfield, Old Capitol, Jackson 113.

MISSOURI: *Examination.* St. Louis, May 27-28 and June 7-8. *Reciprocity.* St. Louis, May 26. Ex. Sec., Mr. John A. Hailey, P. O. Box 4, State Capitol Building, Jefferson City.

NEBRASKA:* *Examination.* Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEVADA:* *Examination and Endorsement.* Reno, July 6. Sec., Dr. George H. Ross, 112 North Curry St., Carson City.

NEW HAMPSHIRE: *Examination and Reciprocity.* Concord, Sept. 8-9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination,* Trenton, June 15-18. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: *Examination.* Albany, New York, Syracuse and Buffalo, June 29-July 2. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany 7.

NORTH CAROLINA: *Examination.* Raleigh, June 21-24. *Endorsement.* Pinehurst, May 3; Raleigh, June 22. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, July 7-9. *Reciprocity.* Grand Forks, July 10. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 14-16. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA:* *Examination.* Oklahoma City, June 9-10. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July 13-15. Acting Sec., Mrs. Margaret G. Steiner, Box 911, Harrisburg.

PUERTO RICO: *Examination.* San Juan, Sept. 7-11. Sec., Mr. Joaquin Mercado Cruz, Box 9156, Santurce.

SOUTH CAROLINA: *Reciprocity.* Myrtle Beach, May 11. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* *Examination.* Vermillion, July 20-21. Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TEXAS: *Examination and Reciprocity.* Fort Worth, June 21-23. Rec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: *Examination.* Salt Lake City, July 7-9. Final date for filing application is June 15. *Reciprocity.* Salt Lake City, June 15. Director, Mr. Frank E. Lees, Department of Business Regulation, 314 State Capitol, Salt Lake City.

VIRGINIA: *Examination and Reciprocity.* Richmond, June 16. Address: Virginia Board of Medical Examiners, 631 First St., S.W., Roanoke.

WASHINGTON: *Examination.* Seattle, July 12-14. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WYOMING: *Examination.* Cheyenne, June 14. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

VIRGIN ISLANDS: *Examination.* St. Thomas, June 9-10. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, June 15. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, May 3-4. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg , Little Rock.

COLORADO: *Examination.* Denver, May 5-6. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

CONNECTICUT: *Examination.* New Haven, June 12. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

FLORIDA: *Examination.* Gainesville, June. Sec., Mr. M. W. Emmel, University of Florida, Box 340, Gainesville.

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 14-15. Sec., Mrs. Ann Baker, 410 W. Michigan Ave., Lansing 15.

MINNESOTA: *Examination.* June 2-3. Sec., Dr. Raymond H. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, May 4-5. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln 9.

NEW MEXICO: *Examination.* Santa Fe, July 18. Sec., Mrs. Marguerite Cantrell, P. O. Box 1522, Santa Fe.

OREGON: *Examination.* Portland, June 5, Sept. 11 and Dec. 4. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, May 12. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: *Examination.* June 11-12. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

WASHINGTON: *Examination.* Seattle, July 7-8. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: *Examination.* Milwaukee, June 5 and Madison, Sept. 24. Final date for filing application is May 28. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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*Basic Science Certificate required.

DEATHS

Nichols, John Benjamin ✠ Washington, D. C.; born in Cazenovia, N. Y., Feb. 2, 1867; Columbian University Medical Department, Washington, 1891; an Associate Fellow of the American Medical Association; in 1912 president of the Medical Society of the District of Columbia, and in 1943 recipient of the annual certificate of award for meritorious service to the society; in 1942 undertook to compile and write the history of the society, part 2, 1833-1944, which was published in 1947; the John Benjamin Nichols award of the society was established last year in his honor; from 1903 to 1912 medical inspector of public schools; member of the board of medical examiners from 1912 to 1915; for many years medical director of the Acacia Mutual Life Insurance Company, serving on the board of directors since 1907 and as advisory medical director since 1939; from 1908 to 1919 lecturer on dietetics in the George Washington University School of Medicine, where he was instructor and professor of normal histology from 1897 to 1908; at various times associated with Garfield, Freedmen's, and the Episcopal Eye, Ear and Throat hospitals; in 1907 won the Fiske Fund prize for his essay, entitled "Diet in Typhoid Fever"; author of articles and books; prepared the history of the National Genealogical Society for its 50th anniversary in 1953; died Feb. 22, aged 87, of coronary heart disease.

Whiting, James Raynor ✠ Lieut. Commander, U. S. Navy, retired, Tucson, Ariz.; born in New York City Oct. 17, 1872; Columbia University College of Physicians and Surgeons, New York, 1896; for many years an instructor on the faculty of his alma mater; appointed assistant surgeon, U. S. Navy, with the relative rank of ensign, June 6, 1898; promoted to lieutenant (j.g.) in June, 1900, and resigned this commission in August, 1901; volunteered for active duty in 1917, and remained on active duty until his retirement in March, 1932; during his more than 18 years of Naval service, served on the U. S. ships Richmond, Chicago, Montgomery, Dixie, Maine, Lydonia, Agamemnon, Chewink, and Procyon; ashore, served at the naval hospitals in New York, Charleston, S. C., and Chelsea, Mass., at the Navy Yard in New York and the Receiving Ship, San Francisco, and at the Naval Station, Tutuila, American Samoa; died Feb. 28, aged 81, of arteriosclerotic heart disease.

Hoge, Arthur Franklin ✠ Fort Smith, Ark.; born in Red Cloud Neb., Oct. 3, 1887; Medical Department of Tulane University of Louisiana, New Orleans, 1909; fellow of the American College of Surgeons; past president of the Sebastian County Medical Society; president of the Tulane University Alumni Association in 1952-1953; charter member of the Southwestern Surgical Association; at the time of his death member of the board of directors of the City National Bank, president of KWHN Broadcasting Company, and president of the Western Arkansas Hereford Breeders Association; member of the executive staff, and in 1945 chief of staff, St. Edward's Mercy Hospital; member of the staffs of the Sparks' Memorial and Crawford County Memorial hospitals; died Feb. 21, aged 66, of multiple myeloma.

Morris, Ernest Mariett ✠ Newton, Mass.; born in Fall River, June 16, 1887; McGill University Faculty of Medicine, Montreal, Canada, 1914; specialist certified by the American Board of Preventive Medicine; member of the American Public Health Association; past president of the Massachusetts Public Health Association; captain in the Medical Corps, U. S. Army, 1918-1922; since 1940 director of public health of Newton; health commissioner of Fall River, 1927-1937, and district health officer, 1938-1940; lecturer on public health, Boston University School of Medicine; instructor in public health practice at Harvard in Boston; served on the staff of the Union Hospital in Fall River and on the courtesy staff of Newton-Wellesley Hospital, Newton Lower Falls, where he died March 6, aged 66, of ruptured abdominal aneurysm.

✠ Indicates Member of the American Medical Association.

Thornhill, Gabriel Felder ✠ Austin, Texas; born in Navasota, Texas, March 31, 1890; New York Homeopathic Medical College and Flower Hospital in New York, 1919; fellow of the American College of Surgeons; past president and secretary of the Travis County Medical Society; served as a member of the board of directors of the Brackenridge Hospital; affiliated with St. David's and Seton hospitals; for many years practiced in New York, where he was an instructor at Columbia University College of Physicians and Surgeons, assistant attending physician at Fifth Avenue and Metropolitan hospitals, and head of the staff of the ear, nose, and throat department of the Doctors Hospital; died Jan. 8, aged 63, of coronary occlusion.

Barbash, Abraham Zuma, South Orange, N. J.; born June 16, 1906; Medizinische Fakultät der Universität, Vienna, Austria, 1935; member of the American Psychiatric Association and the American Orthopsychiatric Association; a major in the U. S. Army during World War II; served as executive assistant of American Association for Psychiatric Clinics for Children, director of division on community clinics of the National Committee for Mental Hygiene, and secretary general of the International Association for Child Psychiatry; died Dec. 24, aged 47.

Blum, Victor Gregor ✠ Chicago; Medizinische Fakultät der Universität, Vienna, Austria, 1900; served with the Austrian Army Medical Corps during World War I; fellow of the American College of Surgeons; associate clinical professor of urology at Stritch School of Medicine of Loyola University; on the honorary staff, Mercy Hospital; consultant at Elgin (Ill.) State Hospital and the Frank Cuneo Hospital; on the governing board and chairman of the department of urology, Columbus Hospital, where he died March 3, aged 76, of polycythemia with myocardial infarction.

Collett, George Arthur ✠ Elko, Nevada; Rush Medical College, Chicago, 1922; specialist certified by the American Board of Surgery; fellow and member of the board of governors of the American College of Surgeons; served as second vice-president of the Nevada State Medical Association; member of the state board of medical examiners; from 1926 to 1946 instructor in medical history at Wabash College in Crawfordsville, Ind.; member of the state board of education; on the staff of the Elko General Hospital; president of the Elko Chamber of Commerce; died Feb. 3, aged 63, of coronary occlusion.

Donohue, Philip Francis ✠ St. Paul; born in St. Paul March 22, 1895; St. Louis University School of Medicine, 1920; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; past president of the Ramsey County Medical Society; formerly on the faculty of the University of Minnesota Medical School; affiliated with Ancker Hospital, St. John's Hospital, St. Luke's Hospital, St. Joseph's Hospital, and the Charles T. Miller Hospital, where he died Dec. 17, aged 58, of aortic stenosis and cardiac hypertrophy.

Graber, C. Lee ✠ Lakewood, Ohio; born in West Lebanon, Ohio, July 4, 1874; Medical College of Ohio, Cincinnati, 1898; also a graduate in pharmacy; fellow of the American College of Surgeons; member of the Radiological Society of North America and the Cleveland Academy of Medicine; formerly on the faculty of the Cleveland College of Physicians and Surgeons; served on the staffs of many hospitals in Cleveland; founder, for many years chief of staff, chief of surgery, and since January 1953 emeritus in surgery at the Lakewood Hospital, where he died Jan. 23, aged 79, of cholelithiasis and adenocarcinoma.

Robinson, William Lee, Texarkana, Texas; born Aug. 3, 1876; University of Texas School of Medicine, Galveston, 1903; also a graduate in pharmacy; veteran of the Spanish-American War, captain with Gen. John J. Pershing on his expedition to Mexico in 1915, and major in World War I; for many years city and county physician; on the staffs of the Austin State School in Austin and the Parkland Hospital; formerly resident physician

at the Beverly Hills Sanitarium in Dallas; affiliated with the Hospital, Lone Star Ordnance Plant; died Dec. 22, aged 77, of coronary occlusion.

Alexander, Alexander Robert, New York; The General Medical College, Chicago, 1923; died in the Montefiore Hospital March 4, aged 56, of arteriosclerotic heart disease.

Barnhart, William ⊕ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1906; served during the Spanish-American War and World War I; formerly affiliated with the Methodist Hospital of Southern California and Hollywood-Presbyterian Hospital; died Feb. 21, aged 77, of uremia and cerebral thrombosis.

Blalock, Burman Karl, Charlotte, N. C.; University of Maryland School of Medicine, Baltimore, 1913; affiliated with Mercy Hospital; died Feb. 25, aged 67, of coronary thrombosis.

Brown, Josiah Henry ⊕ Newton, Mass.; Jefferson Medical College of Philadelphia, 1917; formerly on the staffs of the Newton-Wellesley Hospital in Newton Lower Falls, and Symmes Arlington Hospital in Arlington; died Feb. 7, aged 73, of coronary thrombosis.

Bruckheimer, Ralph Monroe ⊕ Cassadaga, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1911; past president of the Chautauqua County Medical Association; member of the Newton Memorial Hospital in Cassadaga, and the Jamestown General Hospital and the Woman's Christian Association Hospital in Jamestown, where he died Feb. 18, aged 64, of coronary thrombosis.

Clark, Willard Kingsley, Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1897; died Jan. 20, aged 87, of a cerebral accident.

Deering, John Stewart, Onawa, Iowa; University of Nebraska College of Medicine, Omaha, 1919; died in St. Joseph's Hospital in Phoenix, Ariz., Jan. 23, aged 60, of cerebral hemorrhage.

Dill, George Herbert ⊕ Lima, N. Y.; Baltimore Medical College, 1901; an Associate Fellow of the American Medical Association; died Dec. 11, aged 80, of coronary sclerosis and myocardial infarction.

Dixon, Duncan Patterson ⊕ Talladega, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1901; treasurer and past president of the Talladega County Medical Society; medical officer during World War I; affiliated with Citizens' Hospital; died Feb. 27, aged 76, of a heart attack.

Drury, Roy Francis ⊕ Akron, Ohio; Ohio State University College of Medicine, Columbus, 1914; served during World War I; on the staff of the Peoples Hospital, where he died Feb. 16, aged 65.

Edwards, Edward E., Irvine, Ky.; Hospital College of Medicine, Louisville, 1907; served during World War I; died in the Pattie A. Clay Infirmary in Richmond Feb. 22, aged 71.

Eide, Bertha Carolyn, St. Petersburg, Fla.; Loyola University School of Medicine, Chicago, 1922; died March 11, aged 67, of coronary occlusion.

Elkins, Homer Joshua ⊕ Mounds, Ill.; Barnes Medical College, St. Louis, 1910; past president of the Pulaski County Medical Society; for many years county coroner; on the staff of St. Mary's Hospital in Cairo; district surgeon for the Illinois Central Railroad; died Feb. 18, aged 67, of coronary thrombosis.

Fisher, Mandel ⊕ Phoenix, Ariz.; Bennett Medical College, Chicago, 1914; formerly practiced in Chicago, where he was affiliated with Mount Sinai Hospital; member of the Illinois State Medical Society; died in St. Joseph's Hospital March 17, aged 76, of coronary occlusion.

Gardner, Frank M., ⊕ San Bernardino, Calif.; New York Homeopathic Medical College and Hospital, New York, 1904; for many years city health officer; affiliated with San Bernardino County Hospital, San Bernardino Community Hospital, and St. Bernardine's Hospital; died in the University of California Hospital, San Francisco, Feb. 15, aged 75, of leukemia.

Gilkey, Seth Edwin ⊕ St. Paul; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1909; died in St. Andrew's Hospital, Minneapolis, Jan. 19, aged 68.

Granade, John Edwin ⊕ Colonel, U. S. Army, retired, Bradenton, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1931; entered the regular Army as a first lieutenant in July, 1934; promoted to major July, 1945; served in the South Pacific during World War II; retired May 31, 1947 with the rank of colonel; died in Tampa Feb. 20, aged 46, of cerebral hemorrhage.

Hobart, William Lewis ⊕ Lakewood, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1919; served on the staffs of St. Luke's and St. John's hospitals in Cleveland; affiliated with Lakewood Hospital, where he died Feb. 28, aged 59, of chronic glomerular nephritis.

Horst, John Von Der Au ⊕ Mansfield, Ohio; Ohio State University College of Medicine, Columbus, 1925; served during World War II; at one time a medical missionary in Siam; affiliated with Mansfield General Hospital; chief medical director, Ohio State Reformatory; died Feb. 26, aged 53, of a heart attack.

Johnson, Curtis B., Earlington, Ky.; University of Louisville (Ky.) Medical Department, 1900; for many years member of the board of education; for four years mayor of Earlington; died in Jennie Stuart Hospital, Hopkinsville, Feb. 20, aged 74, of uremia and chronic nephritis.

Johnson, Frank B., Columbia, S. C.; Howard University College of Medicine, Washington, D. C., 1902; affiliated with the Good Samaritan-Waverly Hospital, where he died Feb. 14, aged 79, of heart disease.

Johnson, Herbert Hemphry, Los Angeles; Howard University College of Medicine, Washington, D. C., 1952; intern, Los Angeles County Hospital; aged 32; killed in an automobile accident Jan. 2.

Koren, Finn, Chilliwack, B. C., Canada; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; died Jan. 31, aged 80.

Lane, Leslie Coulter, Minneapolis; Rush Medical College, Chicago, 1877; retired president of the Surety Fund Life Insurance Company; died March 15, aged 98, of endocarditis.

Langley, Wilfred Derwood ⊕ Sayre, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1932; on the faculty of Hahnemann Medical College and Hospital, Philadelphia; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; in 1942 president of the Bradford County Medical Society; president of the school board of Sayre; associate in internal medicine, Guthrie Clinic and Robert Packer Hospital, where he died March 18, aged 50, of intracerebral hematoma.

Le Comte, Ralph Michael ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1910; clinical professor of urology at his alma mater; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; author of "Manual of Urology"; affiliated with the Georgetown University Hospital, Providence Hospital, Sibley Memorial Hospital, and the Doctors Hospital, where he died March 11, aged 66, of cancer.

Lee, William F., East New Market, Md.; Hahnemann Medical College and Hospital of Philadelphia, 1889; died in King of Prussia, Pa., Feb. 18, aged 84, of arteriosclerotic cardiovascular disease.

McCann, Richard Bennett ⊕ Seale, Ala.; Atlanta School of Medicine, 1911; served during World War I; died in St. Francis Hospital, Columbus, Ga., Feb. 26, aged 67, of carcinoma of the stomach.

McCord, William Charles, Poland, Ohio; Western Pennsylvania Medical College, Pittsburgh, 1905; died in Mexico City, Mexico, Feb. 7, aged 75, of myocardial infarction and coronary insufficiency.

McKenzie, Duncan, Ottawa, Ill.; Illinois Medical College, Chicago, 1908; at one time practiced in Chicago; died in the Ryburn Memorial Hospital March 5, aged 80, of carcinoma.

Mitchell, Mervin Hur ✠ Albany, Ohio; Ohio State University College of Medicine, Columbus, 1932; died Jan. 29, aged 58.

Morrison, Thomas Joseph ✠ Somersworth, N. H.; University of Vermont College of Medicine, Burlington, 1909; an Associate Fellow of the American Medical Association; served on the staff of the Frisbie Memorial Hospital in Rochester; died Feb. 19, aged 71.

Nicargi, Lawrence Howard ✠ Brooklyn; University of Tennessee College of Medicine, Memphis, 1925; died Feb. 28, aged 53.

O'Malley, Charles Ambrose ✠ New York City; Columbia University College of Physicians and Surgeons, New York, 1918; died Feb. 21, aged 61, of coronary sclerosis.

Parowski, Stanley W. ✠ Chicago; Chicago College of Medicine and Surgery, 1905; an Associate Fellow of the American Medical Association; served as managing officer of the Illinois Eye and Ear Infirmary; died in Hospital of St. Anthony de Padua March 15, aged 79, of hypertensive cardiovascular disease.

Postle, Harold Vieman, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1916; died Feb. 28, aged 64, of a heart attack.

Ranke, John William Henry ✠ Fort Wayne, Ind.; Jefferson Medical College of Philadelphia, 1896; an Associate Fellow of the American Medical Association; served on the staff of the Lutheran Hospital; died in St. Joseph's Hospital Feb. 12, aged 83.

Rebhorn, Earl Herb ✠ Scranton, Pa.; Jefferson Medical College of Philadelphia, 1915; fellow of the American College of Surgeons; served during World War I; member of the Industrial Medical Association; formerly director of public health of Scranton; affiliated with Moses Taylor Hospital; died Feb. 4, aged 60.

Reid, Wightman Tillotson, Cincinnati; Vanderbilt University School of Medicine, Nashville, Tenn., 1905; at one time a medical missionary in Korea; died in the Jewish Hospital Feb. 11, aged 70, of coronary thrombosis and pericarditis.

Replogle, Benjamin Frank, Los Angeles; Chicago Homeopathic Medical College, 1895; died Feb. 10, aged 95.

Reynolds, Herbert Lindley, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1909; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; for many years associate professor of medicine at Emory University School of Medicine; served during World War I; affiliated with Emory University Hospital and St. Joseph's Infirmary, where he died Feb. 19, aged 69, of coronary thrombosis.

Ridler, Hilda Lustig ✠ Rock Island, Ill.; Medizinische Fakultät der Universität, Vienna, Austria, 1915; died Feb. 12, aged 65.

Seelye, Norman Lee ✠ Harvard, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served during World War I; died in the Veterans Administration Hospital, Downey, Feb. 19, aged 75, of cerebral thrombosis and generalized arteriosclerosis.

Slote, Louis Haskell, Brooklyn; Long Island College Hospital, Brooklyn, 1913; died Jan. 24, aged 61, of a heart attack.

Smith, Arthur James ✠ Yankton, S. D.; Creighton University School of Medicine, Omaha, 1934; died in St. Joseph's Hospital in Omaha Dec. 10, aged 46, of coronary thrombosis.

Smith, Charles Chapman, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1924; died Dec. 18, aged 55, of a heart attack.

Smith, George Washington ✠ Canton, Ohio; Eclectic Medical Institute, Cincinnati, 1904; on the courtesy staff of Aultman Hospital, where he died Feb. 4, aged 85, of cerebral hemorrhage.

Smith, Samuel Frederick ✠ Lakeland, Fla.; Eclectic Medical Institute, Cincinnati, 1901; died in the Morrell Hospital Dec. 14, aged 80, of coronary occlusion.

Squibb, Joseph William ✠ Redondo Beach, Calif.; Washington University School of Medicine, St. Louis, 1931; served during World War II; affiliated with Jared Sidney Torrance Memorial Hospital in Torrance and Hawthorne (Calif.) Hospital; died in Los Angeles Jan. 4, aged 48, of coronary occlusion.

Stahl, Fred Arthur ✠ Springfield, Mo.; Harvard Medical School, Boston, 1921; affiliated with Burge and Springfield Baptist hospitals; died Dec. 11, aged 58, of uremia and cardiorenal disease.

Stetson, Alexander Gilmore Cattell ✠ Lakeland, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1907; died in St. Petersburg, Dec. 29, aged 87, of myocardial insufficiency.

Stewart, James Derelder ✠ Owensboro, Ky.; Hospital College of Medicine, Louisville, 1903; affiliated with Our Lady of Mercy and Owensboro-Daviess County hospitals; died Feb. 3, aged 75, of myocardial infarction and arteriosclerosis.

Stewart, John Ross, South Euclid, Ohio; Western Reserve University Medical Department, Cleveland, 1905; died Jan. 29, aged 80, of arteriosclerotic heart disease.

Stewart, Ralph Waldo ✠ Toledo, Ohio; Jefferson Medical College of Philadelphia, 1902; died Jan. 11, aged 78.

Stewart, Wallace Roland ✠ Buffalo; University of Buffalo School of Medicine, 1919; member of the American Society of Anesthesiologists; affiliated with Millard Fillmore and Buffalo Eye and Ear hospitals; died Feb. 5, aged 61, of coronary occlusion.

Stiles, Archibald Wilson, Owego, N. Y.; Baltimore Medical College, 1897; died Dec. 23, aged 81.

Stoen, Harold Jennings, Anoka, Minn.; Rush Medical College, Chicago, 1936; served during World War II; died in Minneapolis Feb. 25, aged 45.

Stoler, Albert E. ✠ Fort Wayne, Ind.; Fort Wayne College of Medicine, 1903; medical examiner for several insurance companies, having served one company for 41 years; on the staff of the Parkview Hospital, where he died Dec. 16, aged 73, of cardiovascular renal disease.

Teixler, Adolph Maurice, Belleville, Ill.; Chicago College of Medicine and Surgery, 1914; served during World War I; affiliated with St. Mary's and Christian Welfare hospitals in East St. Louis; died March 12, aged 67, of cerebral thrombosis.

Terrell, Alexander Bismarck ✠ San Diego, Calif.; Harvard Medical School, Boston, 1910; died Dec. 4, aged 68, of cancer of the prostate.

Wenzel, Richard J., St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1893; died Jan. 2, aged 85, of heart disease.

Whiteman, Frederick Roscoe, Pasadena, Calif.; Meharry Medical College, Nashville, Tenn., 1917; a medical officer overseas during World War I; died Dec. 23, aged 60, of coronary thrombosis with myocardial infarction.

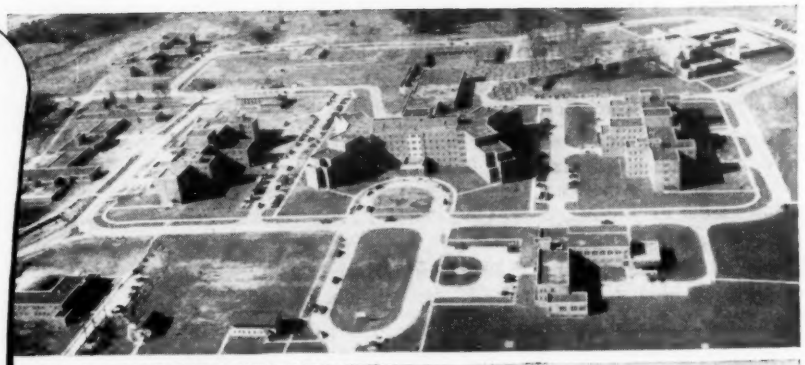
Wiles, Otis, Lexington, Ohio; Western Reserve University Medical Department, Cleveland, 1892; on the staff of Mansfield (Ohio) General Hospital; died in Madison Hospital, Mansfield, Dec. 24, aged 87, of cerebral hemorrhage.

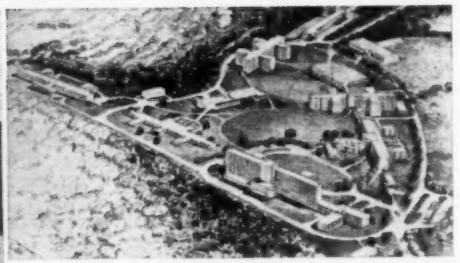
Wiley, Eugene Dalby ✠ Sioux City, Iowa; State University of Iowa College of Medicine, Iowa City, 1928; interned at Salt Lake County General Hospital in Salt Lake City; surgeon for the Oregon Short Line Railroad at West Yellowstone, Mont.; formerly associated with the Kaiser Company at Coulee Dam and Vancouver, Wash.; affiliated with Methodist, St. Joseph Mercy, and the Lutheran hospitals; died Feb. 3, aged 49, of a coronary attack.

Wilford, Evelyn Patricia, Chicago; University of Toronto Faculty of Medicine, Toronto, Canada, 1946; resident, Lewis Memorial Maternity Hospital; died in the Mercy Hospital Dec. 2, aged 29, of staphylococcic septicemia due to cellulitis of right index finger from a punctured wound.

Williams, Everett Benson ✠ Chicago; Northwestern University Medical School, Chicago, 1906; fellow of the American College of Surgeons; affiliated with the Ravenswood Hospital, where he died March 17, aged 73, of hypoplastic anemia.

Veteran Hospitals Constructed During 1953.—The new VA hospitals illustrated on this page were constructed during the calendar year 1953. As of Jan. 31, 1954, there was a total of 168 hospitals in operation under the Veterans Administration, with a total bed capacity of 124,715, while four new hospitals were still under construction and five more were in the planning stage. The total veteran population in civil life at the end of February, 1954, was 20,608,000 (a preliminary figure subject to revision). The average daily patient load totaled 112,206 in VA and non-VA hospitals. The average daily member load in the VA domiciliaries was 17,122. Illustrations of new veterans' hospitals completed during several previous calendar years were published in THE JOURNAL, May 6, 1950, page 123; March 10, 1951, page 748; March 1, 1952, page 760; and May 2, 1953, page 69.





Reading from top and left to right are the hospitals at Salisbury, N. C.; Ann Arbor, Mich.; Chicago; West Haven, Conn.; Chicago; Brockton, Mass.; Oklahoma City; Syracuse, N. Y.; St. Louis; and Pittsburgh.

FOREIGN LETTERS

ENGLAND

Smoking and Cancer of the Lung.—The Minister of Health has published the report of the Standing Advisory Committee on Cancer and Radiotherapy. At a press conference called to coincide with the publication of this report the Minister issued the following statement: "(1) There has been an increase in deaths from lung cancer in this country which began about 1919 and has continued ever since. The increase is much greater in males than females. Between 1911 and 1919 the number of deaths from cancer of the lung was about 250 per year. . . . In 1931 the number of deaths attributed to lung cancer in England and Wales was 1,358 for males and 522 for females. These figures represented 5% of all cancer deaths and 0.5% of deaths from all causes in males, and 2% of all cancer deaths and 0.2% of deaths from all causes in females. In 1951 the number of deaths had risen to 11,166 males and 2,081 females. The latest figures available, for 1952, showed a further increase in that 11,981 males and 2,237 females died from the disease. These represent 26% of all cancer deaths and nearly 5% of deaths from all causes in males, and 5% of all cancer deaths and 1% of deaths from all causes in females. The figures also show that the highest mortality rate from lung cancer in males occurred in the 65 to 74 age group, whereas in females the highest rate occurred in the 75 and over age group. (2) Comparable increases have been reported in all countries from which reliable statistics are available. Factors such as the increasing age of the population and better diagnosis account for some of the rise but not the whole of it. (3) Tobacco smoking plays some part in this increase. . . . (4) . . . Tobacco smoking cannot be the only factor since the disease occurs in non-smokers. Not one but several factors or a combination of factors must be regarded as responsible. (5) The disease is more prevalent in urban areas than rural areas and different parts of the country suffer more than others. (6) No substance producing cancer of the lung has yet been specifically identified in tobacco smoke. Certain tars derived from tobacco smoke have produced skin cancers in mice but this is not considered as being conclusive evidence of the presence of a substance producing cancer of the lung.

"The following matters must, however, remain speculative until further evidence comes to light: (1) There is no firm evidence of the way in which smoking may cause lung cancer or of the extent to which it does so. All that can be said at present is that there is a presumption that it does, but the evidence does not permit us to say any more than that. (2) The difference in incidence between town and country and between different towns suggests that other factors should be taken into account such as atmospheric pollution or risks from particular occupations, but no evidence is available of the extent to which these factors operate. (3) Although the risk of contracting the disease appears to increase with the amount smoked, particularly if cigarettes, no reliable factual estimate can be made of the precise effect of smoking. In view of this, it is not possible to come to a final and definite conclusion on this matter. A good deal of research and information is needed before anything more firm can be said. Many investigations are taking place both in this country and abroad which bear directly on the problem and also into the related problem of the effect of atmospheric pollution on health. The Ministry are also in close touch with the Medical Research Council on this, and there will be no hesitation in launching further research if any particular line shows promise."

Immediately after the Minister's press conference, a group of leading tobacco manufacturers issued the following statement: "The suggestion that the increased incidence of cancer of the lung in recent years may in some way be related to smoking derives from certain statistical inquiries. A statistical relationship—even if established beyond all doubt—can never do more than indicate one of the lines to be further investigated. There is no proof that smoking is a cause of lung cancer. The disease occurs in those who have never smoked. The number who smoke and contract the disease is a very small proportion of those who smoke and do not contract it. The disease is much more common in towns than in country districts, yet there is no corresponding difference in the average amount smoked by people living in towns and people living in the country. There are medical authorities who are laying increasing emphasis on atmospheric pollution as a possible cause. The tobacco manufacturers recognize the importance of accelerating medical research to ascertain the true cause or causes of this disease. They arranged to make available over the next seven years a fund of £250,000 in aid of such research."

Reproductive Capacity of the Nation.—The Registrar General's statistical review of England and Wales for 1946 to 1950, just published, shows that the population of the country increased during this period by about 1½ millions. The proportion of persons 65 years old and over rose from 102 per 1,000 in 1943 to 109 in 1950. The comparable figure for 1939 was 89. The birth rate rose sharply from 15.9 per 1,000 in 1945 to 19.2 in 1946, but by 1950 it had declined to 15.8. The number of conceptions out of wedlock (illegitimate and premarital conceptions) in this five year period was 497,199 (a yearly average of 99,440), of which 56% were regularized by the marriage of the parents before the birth. These figures compare with a yearly average of 86,059, with 49% regularized for the six year period from 1940 to 1945.

Reference is made to the effective reproduction rate. This consists in comparing the fresh reproductive capacity created in a calendar year with the reproductive capacity that has been lost in this period. If these two capacities were exactly equal, the effective reproduction rate would be expressed as unity. In 1947 the rate was 1.24 (or roughly 25% in excess of a replacement standard). In 1950 it had declined to 1.017 with the apparent prospect of settling at about the level of unity over the immediate years ahead, nearly 25% in excess of what it was at the outbreak of war in 1939. The report shows that the generation of women born 110 years ago produced female progeny more than 40% in excess of its own numbers; that born in 1876 reproduced itself completely, but that born in 1906 produced only two-thirds of its own numbers. Subsequently there has been a steady improvement.

The repercussions of divorce on family life and thereby on the emotional health of children makes it a matter of medical interest, and it is therefore worth noting that the average number of divorce petitions filed in the period 1946 to 1950 was 38,901. Previous annual averages were 2,848 in the period 1921 to 1925; 7,535 in the period 1936 to 1940; and 16,075 in the period 1941 to 1945. Women married at younger ages had higher rates for dissolution of marriage in the earlier years of marriage than did those married at older ages, and these higher rates persisted at later years of marriage than in the case of women married at older ages. It is estimated that if the 1950 experience were to continue, 1 in 4 women marrying at the ages 16, 17, and 18, 1 in 10 marrying at the ages 19 to 22, and 1 in 16 marrying at the ages 23 to 27 would have their marriages dissolved before they had lasted 20 years.

The Minister and Full-Time Consultants.—The bogey for a full-time medical service is one that constantly haunts the precincts of Tavistock Square. At a dinner there the other night, as the guest of the British Medical Association, the Minister of Health did his best to lay this bogey so far as he and his colleagues in the present Government are concerned. The relevant section of his speech, quoted here, shows the attitude of the present government to the National Health Service.

"For a long time there has been considerable controversy about the future of the consultant and specialist service within the N. H. S. It would be strange indeed if all the echoes of

The items in these letters are contributed by regular correspondents in the various foreign countries.

conflict within the last few years had died down, and it is idle to pretend that there are not amongst politicians two schools of thought. There is one school which says that the future of consultants and specialists (and the future of general practitioners as well) lies in a whole-time salaried service. I personally give you my opinion that that would be disastrous. I know perfectly well that different people hold that opinion, and sincerely, but it does seem to me that in the pursuit of that particular aim there is some danger of suggestions that I think are utterly unworthy of being made. I am particularly concerned at the suggestion that in some strange way whole-time specialists are different from part-time specialists . . . one might come to think that all the whole-time consultants are unselfish, righteous, holy people—and, of course, socialists—while the part-time consultants are wicked, money-grabbing charlatans—and, of course, tories. It is not necessary for me to comment on that to you, but it may be necessary to make a comment on it for the benefit of people outside these walls. Consultants and specialists are not primarily whole-time or part-time, they are primarily doctors, and they have the same standard of ethics and conduct towards their patients whether those patients are in private rooms or in wards, and whether the consultant works whole-time or part-time or in fact is not within the N. H. S. at all."

Air Conditioning in Burns Units.—A further report on the use of positive-pressure ventilation with filtered air in dressing rooms has just been issued from the Burns Research Unit of the Birmingham Accident Hospital (Lowbury, E. J. L.: *Lancet* **1**:292, 1954). The dressing room used for this investigation has a capacity of about 3,000 cu. ft. and was ventilated, through four diffusers in the ceiling, with air that had been pumped from an inlet above the roof through a Kompak cotton-wool filter to remove coarse debris and a Multivee filter for smaller particles. Air, which was admitted at a rate of 20 complete changes an hour, was warmed to 70 to 75 F and humidified to 50 to 60% relative humidity before it reached the dressing room and escaped through a 2 in. gap under the door into an air lock ventilated by an extractor fan. Over a period of seven months a comparison was made of the bacteriological findings in burns dressed in the room with and without the air-conditioning plant running. Of 207 burns dressed in filtered air, 36 (17.4%) were infected with Pseudomonas aeruginosa, compared with 85 (37.3%) of 228 burns dressed in the same room with no air-conditioning. These differences were significant. Smaller but significant effects were also found with (1) Micrococcus pyogenes var. aureus (Staphylococcus aureus), 25.8% in filtered and 41.1% in unfiltered air; (2) Proteus organisms, 24.3% in filtered and 38.9% in unfiltered air; and (3) Streptococcus pyogenes, 10.4% in filtered and 16.3% in unfiltered air. In addition, the nasal mucosa of patients whose wounds were dressed in the air-conditioned room acquired a significantly lower proportion of staphylococci resistant to penicillin and chlortetracycline and of hospital strains of Staph. aureus than did the nasal mucosa of control patients.

Contact Lenses.—The efficiency of ventilated compared with nonventilated glass contact lenses has been studied by D. P. Choyce (*Brit. J. Ophth.* **38**:100, 1954). His results are based on a comparison of the answers to a questionnaire completed by 785 users of ventilated contact lenses, and the answers to a similar questionnaire sent out to 875 users of nonventilated lenses by A. G. Cross (*Brit. J. Ophth.* **33**:421, 1949). In both series almost 60% of the lenses were supplied for myopia, but over 10% of the ventilated lenses were supplied for aphakia, compared with 4% of the nonventilated lenses. Fitting of both types of lenses was time-consuming, and the average number of sessions required was around 20. Of patients fitted with ventilated lenses, 20% had given up using them at the time of the investigation, compared with 33% of those using nonventilated lenses. There was little difference in the two groups in the average daily period of wear, whether or not the lenses were worn every day. About a quarter of each group removed the lenses because of discomfort. "Veiling" was almost equally common in the two groups, in 70% of those wearing ventilated lenses and 74% of those with nonventilated lenses. Only 20% of wearers of ventilated lenses found bubbles a nuisance, compared with 56% of the wearers of nonventilated lenses. As judged by the fact that lenses were still worn, keratoconus and mustard keratitis are the two conditions best treated with contact lenses, with myopia close behind. It appeared that the greater the degree of myopia, especially when associated with astigmatism, the more suitable are contact lenses. Of the 144 patients who had worn both ventilated and nonventilated lenses, 83% preferred the former, usually because they produce less veiling and are more comfortable.

Vitamin B_{12} Inhalations.—Confirmatory evidence of the value of vitamin B_{12} inhalations in the treatment of pernicious anemia is reported by M. C. G. Israels and S. Shubert (*Lancet* **1**:341, 1954). The vitamin B_{12} was diluted with a nonirritant powder and put up in capsules containing 100 mcg. of vitamin B_{12} diluted with 135 mg. of powder; the volume of the powder is about 0.3 ml. The capsules are perforated, and the perforations are closed with threads. For administration a simple insufflator is used. The detachable tip is removed from the barrel, and the threads are pulled out of a capsule, which is then placed in the lower part of the insufflator. The top is replaced and the nozzle inserted into the nose. A few vigorous puffs eject the contents of the capsule into the nose, and the patient is instructed to take deep breaths to inhale the powder. The whole operation takes only a few seconds. There have been no complaints of nasal irritation from the powder. This "vitamin B_{12}-snuff" has been used by four previously untreated patients with pernicious anemia and in one previously given vitamin B_{12} intramuscularly. New patients were given two or three capsules daily, and maintenance therapy consisted of one capsule once or twice weekly. All the patients responded satisfactorily with doses of the same size as those given intramuscularly. This treatment is relatively inexpensive, but is not suitable for patients with nasal obstruction or chronic catarrh.

Music in Therapy.—The Middlesex County Council plans to start choral singing classes in various parts of the county for handicapped residents. Choral singing is "considered to be one of the most exhilarating of pastimes for disabled people and in addition to the enjoyment derived from participation, it enables them to obtain the benefit of deep-breathing, breath control and expansion of the lungs which they could not otherwise obtain in the course of the day spent sitting in their wheelchairs or moving about on crutches." The scheme is intended for persons with all forms of disability. Music, a conductor, and a pianist will be provided by the county council, and there will be free transport for those unable to travel by public conveyance. The scheme will be entirely free to those unable to pay, but those who can will be asked to pay 10 shillings a year or as much of this sum as they can afford.

Cost of the National Health Service.—Figures just published show that in the fiscal year 1952-1953 the National Health Service cost £425,818,689 in England and Wales. This is an increase of over £40,000,000, compared with the previous year, but much of this increase is accounted for by the cost of the Danckwerts Award to general practitioners, which represented accumulated arrears since the inauguration of the service. The main items of expenditure were: £255,925,715 for hospital, specialists, and ancillary services; £18,553,086 for grants to local health authorities (e. g., for midwifery, child welfare, and ambulance services); £75,631,433 for general medical services (i. e. general practitioners); £42,886,977 for pharmaceutical services; and £22,089,093 for dental services.

Death from Carbimazole.—What is believed by the authors to be "the first example of a fatal marrow aplasia following the use of carbimazole" (Neo-mercazole [2-carbethoxythio-1-methylglyoxaline]) is reported by J. S. Richardson and associates (*Brit. M. J.* **1**:364, 1954). The patient was a 23-year-old woman with severe thyrotoxicosis (the basal metabolic rate was + 70%). Because an operation was contraindicated by the presence of extensive bilateral bronchiectasis, she was given 10 mg. of carbimazole three times daily starting on June 19, 1953. On Aug. 12, purpura developed and the leukocyte count had fallen to 4,000 per cubic millimeter, with a normal differential count. Carbimazole therapy was immediately discontinued. As there was no response to penicillin and transfusions, she was given cortisone and corticotropin (ACTH). In spite of all that could be done, however, she died on Dec. 28, 1953, 139 days after the onset of the agranulocytosis. Her death was due to cerebral hemorrhage.

ITALY

Recovery from Infectious Diseases.—A report on the role of antibiotics and immunologic processes in recovery from infectious diseases was read by Prof. C. Frugoni and Professor Giunchi at the national convention of internal medicine in Rome in October. The speakers had examined analytically and critically a large amount of clinical and experimental data, with contrasting conclusions. They evaluated the facts objectively and tried to define the contrasts, apparent or real, so that the most reliable solutions could be reached on the basis of the critical evaluation of their own experience and that of other workers in this field. Although some of their conclusions are not definitive and may seem unsatisfactory to other workers, this is due mainly to the vastness of the subject. Immune processes, spontaneous or induced, as well as antibiotics, have an antibacterial activity that can be bacteriostatic or bactericidal. Although the antibacterial action of the antibiotics ends when the bacteria disappear from the organism, that of the immune processes persists. The mechanisms through which the antibiotics and the immune processes carry out their bacteriostatic or bactericidal action are complex and varied. The fact that they can interfere with each other is of great importance. A direct detoxicating action by the purified antibiotics or a direct inhibition of the production of antitoxic antibodies is not admitted for antitoxic immunity provided the antibiotic is given in therapeutic doses and that it is not toxic for the animal being treated.

In general, the production of antitoxic antibodies is not smaller under the influence of the antibiotics, but in some infections treated with antibiotics there is in effect a smaller production of antitoxins. As for endotoxins, the detoxifying action of the antibiotics does not assume practical importance. For antitoxic immunity and also for antibacterial immunity, the immune response is decreased by the antibiotics in some infectious processes.

The interference of the antibiotics with the immune response, antitoxic as well as antibacterial, takes place indirectly through bacteriostasis and phagocytosis. With bacteriostasis, the antibiotic limits the quantity of bacterial antigen stimulating antibody formation, and at the same time it renders the bacteria more readily phagocytized. Phagocytosis decreases the antigenic power of the phagocytized bacteria. In addition, bacteriostasis and phagocytosis together limit or prevent the bacteremia and the secondary invasion of bacteria into various sectors of the reticuloendothelial system. These conditions seem to augment the decrease of the intensity of the antigenic stimulus, which is the first cause of the specific immune reaction. The interference of antibiotics with immunity extends also to the immunoallergic processes. This is, however, a particular activity of some antibiotics that usually must be given in massive doses to become evident. The practical aspect of this point has been limited up to now.

The main conclusion from these premises is that the antiinfectious action of the antibiotics is best achieved through the collaboration of the organism with their antimicrobic activity. The validity of this statement is demonstrated not only in experimental but also in clinical pathology.

The use of antibiotics has created complex immunobiological situations that cannot always be experimentally reproduced and that are largely responsible for upsetting the usual course of the infectious diseases. The knowledge of this new pathological process, which the speakers called "the pathology modified by antibiotics," seems to be the main factor in diagnosis, prognosis, and therapy. In fact, the etiological diagnosis may be difficult or almost impossible because of early destruction of the causative agent and consequent lack of classic symptoms. The prognosis is radically changed for most infectious diseases, as is shown by the decrease in mortality since the extensive use of antibiotics. Despite statistical findings, however, the use of antibiotics has not simplified the clinical and prognostic evaluation of each patient.

Recovery cannot always be obtained quickly and surely with antibiotics alone. The combined use of antibiotics and specific immunotherapy, especially antitoxic serum, is necessary in diseases caused by germs that act mainly by producing exotoxins. The relationships between antibiotics and immunity are closer in some general diseases, such as typhoid and brucellosis. In tuberculosis, immunity, considered as a complex of specific defensive powers and allergy, is quickly influenced by streptomycin. The potentiation of the organic defenses of the tuberculous patients with immune therapy is recommended by some schools, but observations do not seem to show sufficiently the harmlessness and the effectiveness of this therapeutic combination.

The picture of syphilis has been entirely changed by the action of antibiotics. Its clinical and serological signs may be totally suppressed. The clinical and immunological findings of each infectious disease are altered to a varying extent by the administration of antibiotics. This phenomenon is characterized by the absence of some of the usual symptoms of each disease, by the occurrence of new symptoms, and by the modification of the natural course of the disease. In many diseases that have a gradual onset and a subacute or chronic course, antibiotic therapy cannot be instituted early enough to prevent the formation of permanent, more or less severe, lesions in the various tissues or organs. These lesions may evolve in an autonomous manner after the disease that started them has been conquered by the antibiotics. It is possible in these cases to speak of a "pathology of the survivors."

LUXEMBOURG

Degree of Doctor of Medicine.—In my letter in THE JOURNAL of Oct. 8, 1949, attention was called to the proposed modification of the present law regulating the conferring of degrees of doctor of medicine in Luxembourg. No action was taken, and the difficulties encountered by Luxembourgian medical students in foreign schools have continued and have again attracted the attention of the authorities. Pundel made a new appeal to the Society of Medical Sciences of the Grand Duchy and pointed out that if a Luxembourgian conforms to the laws of this country, he will be limited almost exclusively to the theoretical studies covered in the state examination. The practical aspects will be neglected, and regardless of his intentions, the Luxembourgian system makes it impossible for him to get the same practical experience as his fellow students from other nations without undertaking an enormous amount of extra work or losing an entire year of study. It is also extremely difficult for him to prepare for the university examinations at the same time, because the state and university programs are usually divergent in time. The best solution is the complete abolition of the present system, the recognition of university degrees, and the institution of a single licensure examination.

NORWAY

Lupus Vulgaris from BCG Vaccination.—As early as 1942, Prof. K. A. Jensen of Denmark prophesied the development of lupus vulgaris as a sequel to BCG vaccination because the virulence of BCG is only a little less than that of the tubercle bacillus. Two years later Lomholt reported the first of such cases, and since then a few more have been reported. In *Nordisk medicin* for Feb. 18, 1954, Dr. K. Ødegaard of Norway has given an account of a seventh such case. His patient was a man, aged 56, without any family history of tuberculosis. About three years after percutaneous BCG vaccination had been carried out, he was again vaccinated at the same site. A clinically typical lupus plaque developed at the site of vaccination, and it presented the histological characteristics of lupus vulgaris. Acid-fast rods with the characteristics of BCG were cultivated from this plaque. Local treatment with ultraviolet light was given, and isoniazid by mouth was supplemented by injections of streptomycin. Six months later, the plaque had practically disappeared, and lupus-like nodules were no longer demonstrable under pressure with glass. In one of the earlier six cases, BCG vaccination had been repeated at the original site of vaccination. Ødegaard suggests that, therefore, it may be well not to revaccinate at the site of a first vaccination.

CORRESPONDENCE

VERTEBRAL FRACTURES IN CONNECTION WITH ELECTROCONVULSIVE THERAPY

To the Editor:—I am writing this letter to correct what I believe to be a misleading impression created by the article of Dewald and others, "Vertebral Fractures as a Complication of Electroconvulsive Therapy," that appeared in the March 20, 1954, issue of THE JOURNAL. The impression created by this article is a gloomy one, namely, that over a third of those receiving electroconvulsive treatment experience vertebral fractures. It is true that the authors mention the fact that many of the fractures are symptomless and that no disabling residuals are left. Nevertheless, the casual reader comes away with the feeling that electroconvulsive therapy is a dangerous procedure, particularly because the fractures seem to be inevitable. The authors contribute to this impression because they speak of electroconvulsive treatment wholly in terms of the Glissando and direct method of treatment and with the use of the alternating current. In their discussion of attempts to reduce the occurrence of fractures, they mention "modifications in the means of initiating the electric shock." This latter statement is vague but probably refers to variations in the Glissando technique in the use of the alternating current.

It is regrettable that the authors did not refer to any of the numerous articles in the literature describing different techniques and currents that are much safer to use. It is in the interest of scientific accuracy that we must point out that there are now in use apparatus that produce low intensity unidirectional currents that bring about mild convulsions analogous to those seen with the use of curare or curare-like drugs.

In Pinewood we have used both the conventional alternating current type of machine identical to that used by Dewald and associates and also the newer Reiter apparatus. Our fracture rate was also high with the former but has become negligible with the latter. For a description and discussion of the different types of currents and parameters of treatment, we refer to the chapter on electrical properties of currents used for treatment in "Treatment of Mental Disorder" by Leo Alexander, M.D. (Philadelphia, W. B. Saunders Company, 1953, page 83).

It is true that many, if not the majority of, hospitals continue to use the alternating current method of treating patients. This is because of its utter simplicity of operation and its "mass production" ability; it takes about one minute of the physician's time per patient. The fact remains that it is a "push-button" type of treatment. All control over the patient in respect to the severity of the seizure and other phenomena associated with the convulsion is lost the instant the button is pressed. It is apparent and can be safely predicted that this type of treatment will go down in medical history as the first successful, yet archaic, approach in electrotherapy of psychoses.

The newer type of apparatus, as developed by Reiter, (unidirectional pulsating, low intensity currents), enables the physician to regulate carefully the amount of current necessary for the convulsion. The convulsion can be controlled and ushered in softly. There is no necessity whatever to hold the patient, to insert mouth gags, or to position him in a hyperextended posture. We have given thousands of treatments by this method, and it is rare indeed to have a patient complain of any pain whatever. We have not considered it necessary to make films of our patients except if there is complaint of back pain. This is in such contrast to former times when, using the identical type of instrument as described by Dewald and associates, patients frequently complained of backaches and all kinds of pains, and films were always being made. In the last consecutive 100 patients treated here by the unidirectional pulsating wave currents, we have had 6 who complained of back pain. Careful x-ray studies were done and in not one was a fracture found. Considering that this series of patients received over 1,000 individual treatments, it is a small number indeed that had any pain. And there was not one fracture! It should also be mentioned that, with this treatment, there is no possibility of jaw fracture or dislocation, since the nature of the current is such that the mouth is held closed during the treatments.

As further evidence, I wish to call attention to a case report in the *American Journal of Psychiatry* (Electroconvulsive Therapy in Acute Multiple Fractures, **110:**542 [Jan.] 1954) by Cohen and others. The authors describe the case of a 61-year-old man with multiple fractures, including one of the right femur, following a suicidal attempt. Three weeks after orthopedic operative treatment, this patient was given a series of eight electroconvulsive treatments with the Reiter apparatus and without any preliminary curare-like drug. No further fractures ensued, and the patient recovered from his psychosis.

I am anxious to point out that the fractures reported by Dewald and associates resulted from the use of one particular type of current applied in a particular manner and that this type of current is being replaced by other types that are safer and that the authors did not mention in their discussion of means to prevent fractures. I do not question the accuracy of the report by the authors; however, they fail to project their findings against the background of tremendous strides of progress in newer methods of electroconvulsive therapy. They have not taken into account the reports in the literature of methods producing mild or altered convulsions so that the danger of fracture is minimized and the need for curare or curare-like drugs is eliminated. Under these circumstances their statistical conclusions are not in proper context and, therefore, cannot be accepted as scientifically correct.

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ALCOHOL VAPOR AND PULMONARY EDEMA

To the Editor:—An editorial in THE JOURNAL on treatment of pulmonary edema (*J. A. M. A.* **154:**62 [Jan. 2] 1954) called the attention of physicians to dangers of alcohol vapor treatment as advocated by us (*Circulation* **5:**363, 1952; *Ann. Int. Med.* **37:**1221, 1952; and *Am. J. Obst. & Gynec.* **65:**314, 1953).

While the statements contained in that editorial are theoretically correct, they may unnecessarily lead to excessive dilution of the alcohol and thereby deprive patients of the full benefit of the treatment. It should be noted that, from reports made to us, the number of alcohol vapor treatments that have been administered to date can be reckoned in the thousands. No accidents resulting from its use have been reported.

The theoretical hazards connected with its use are dependent on ignition—either from within or without the system. While flammable, alcohol-oxygen mixtures are far less explosive than common anesthetic-oxygen mixtures. However, precautions should be taken to avoid any external sources of

ignition. The hazard of ignition resulting from flash fire starting in the regulator is present under all conditions of oxygen therapy; however, this is considered a rare possibility as compared to the external hazard. In an experiment run here with 96% alcohol in the bottle, a stream of oxygen containing alcohol vapor did not ignite when a free flame was applied. This was probably due to the fact that the ethanol concentration is always low in the jet of oxygen, even when the flow is raised to 10 liters per minute; therefore, the optimal oxygen-alcohol ratio for ignition is not present. While 30% concentrations of alcohol in the vaporizer are adequate, if this is administered by mask, administration by nasal catheter is most successful when a 95% concentration is used. Lower concentrations are not adequate for optimal results.

Certain precautions should be taken: 1. Alcohol-oxygen vapor therapy should be initiated under direct supervision of a physician. 2. It should not be administered by means of an oxygen tent, since this technique increases the hazards and produces less favorable results. 3. As a minimum, the usual precautions adopted during the administration of oxygen should be strictly followed (no smoking, no open flame). 4. Persons handling humidifiers or flow meters should be cautioned not to remove the regulator from the cylinder without first detaching the jar from the regulator. 5. A humidifier equipped with a safety valve that prevents an undue elevation or pressure in the jar should be used. Although we did not use the following device in our reported studies, further protection against the untoward consequences of regulator ignition can be provided by placing the alcohol solution in a second humidifier bottle that is interposed between the conventional system and the patient. We feel that adequate concentrations of alcohol, as previously outlined, should be used. The elementary precautions listed above should be sufficient to prevent accidents on the basis of experience to date.

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CORTISONE THERAPY IN Rh INCOMPATIBILITY

To the Editor:—In the article by Hunter, "Cortisone Therapy in Rh Incompatibilities" (*J. A. M. A.* **154:**905 [March 13] 1954), the author concludes that "this therapy reduced the mortality rate of babies born alive from 10%, with exchange transfusion alone, to 3%. The incidence of stillbirths was reduced from 17% to 5%." This conclusion is contrary to the findings reported in table 2 of his paper. Among 21 pregnancies there were three Rh-negative babies, which reduced the series to 18 cases. Among these 18 cases, there were three stillbirths, or 16.66%, that is almost exactly the usual stillbirth rate of 17% cited by the author. Among the 15 babies born alive, 3 died, a mortality rate of 20%, not 3% as claimed by the author. Significantly, all the babies were treated by exchange transfusion, so the author obviously did not rely on cortisone therapy alone.

The fallacious conclusions of this author are based on the incorrect premise that, once a sensitized Rh-negative woman has a stillbirth or a baby with fatal erythroblastosis, all future Rh-positive babies are doomed. The author states, "It is important to observe that, prior to the use of cortisone, we had never seen an Rh-positive child born alive of a mother who had previously had a stillbirth." This is contrary to my own experience and the experience of other investigators. The Rh antibody titer does not necessarily rise progressively with each succeeding pregnancy, since, unless there is a leakage of Rh-positive blood into the mother's circulation to stimulate a rise in titer, the tendency is for the titer to decline with time. Thus, a live baby may follow a stillbirth, and a mildly affected baby who requires no treatment at all may follow a severely affected one (Chown, B.: *Blood*, spec. issue no. 2, pp. 155-163 [Jan.] 1948). This variation in severity of the disease in succeeding babies must be taken into account when evaluating treatment administered to the mother during pregnancy. It is common knowledge that even in like-sexed twins the manifestations may differ in severity.

Obviously, cortisone therapy during pregnancy does not prevent erythroblastosis, because all the babies born alive in Hunter's series had to be treated by exchange transfusion. Nor does it ameliorate the disease as shown by Hunter's own results. As further evidence one may cite a recent report (DeCosta, E. J.; Gerbie, A. B., and Potter, E. L.: *Obst. & Gynec. Rev.* **3:**131-140 [Feb.] 1954); in this series 10 sensitized women were treated with cortisone during pregnancy and the fetal salvage was only 25%. My purpose in this letter is to warn against the use of cortisone for treating Rh sensitization during pregnancy, because this treatment not only has no beneficial effect but also subjects the mother and baby to an additional hazard.

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MEDICAL ASSISTANTS

To the Editor:—The Michigan State Medical Society felt the readers of The Journal would be interested in the following information regarding medical assistants throughout the nation. The organization of medical assistants' societies has increased throughout the nation during the past five years, and the emphasis on public relations has given professional recognition to the medical assistant. Doctors of medicine have become aware of the need for special training of medical office personnel. Several state medical associations have as a project of their own the organization of a medical assistants' society and have found them to be a very important adjunct.

The statistics from a recent national survey reveal that 3 states (Kansas, Michigan, and Oklahoma) are organized on a statewide level, 10 states have medical assistant organizations on a county or city level, and 14 states are not organized but have annual meetings sponsored by the medical society. Only 18 states had no definite program for their assistants, but almost all expressed the opinion that such an organization would be met with favor. Medical assistants' organizations encouraged and endorsed by medical societies have become an integral part of the medical profession. These societies are composed of city or county medical assistants, each group having an advisory board appointed by its county medical society. The statewide organizations have an advisory board appointed by the state medical society; this directs the activities and policies of the organization. It is interesting to note the similarity of purpose, types of membership, and aims of the organized groups throughout the nation. These societies are answering the needs of medical assistants in discussing mutual problems, giving training courses, participating in worth-while community activities, and giving the assistant the feeling that he or she is an integral part of the medical profession.

Mutual benefits from such a program make a better physician-employee relationship and open a channel for specifically training medical assistants that already has been too long neglected. It is said that the physician of the future will be able to do more work and more important functions because he will utilize more assistants. I sincerely hope this information will stimulate interest in other states in organizing state medical assistant societies.

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COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

The following paper is one of a series of six special articles dealing with the role of the individual physician in medical civil defense planning and operations.

C. JOSEPH STETLER, *Secretary.*

DEVELOPING MEDICAL PARTICIPATION IN CIVIL DEFENSE

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There are such a multitude of facets of this problem to be explored, if a physician desires to prepare himself for leadership in the civil defense program and to promote participation by all groups in civil defense organizations, that extreme difficulty is encountered in attempting to compartmentalize the manner in which these objectives are accomplished. Heretofore the task has been a long and tedious one. The physician entering the civil defense program for the first time at this late date will in no way encounter the many difficulties that pioneers in the program met with during the past four or five years. We now have varying degrees of efficiency in civil defense departments from the national down to the local level, and the physician can fit into these organizations readily.

IMPORTANT ATTRIBUTES FOR LEADERSHIP

The manner in which the physician develops the necessary leadership and encourages the required participation in civil defense can best be visualized through recounting the qualities of some of the medical pioneers in the civil defense program. To be a leader in a local civil defense organization, the physician must be a stubborn sort of person, one not easily discouraged by the snail-like pace with which his program develops. He must have imagination in order to circumvent the many distressing and disheartening road blocks, so frequently placed in his path, that may be extremely frustrating unless the physician utilizes all of his ingenuity in overcoming or going around these obstacles. For example, in many states the medical program has been in advance of the work by all other divisions of the civil defense organization. Because of the limited preparedness of the other divisions, coordination of the activities of all the divisions has been hampered. For the medical division to have stood still until other groups caught up with them would have resulted in a mediocre medical program today. Hence, if incomplete coordination produces a stalemate, the physician must attack his particular problems in other directions and not be completely halted by one facet of his program.

Many hours spent away from home will be required of the physician who is to lead the civil defense effort, along with the sacrifice of many of his usual avocations. Those who pioneered this program worked many hours at night and on Sundays to create the basic organization of the medical-health services. This meant sacrificing golf and certain social obligations that everyone enjoys. In some instances, pioneers in this field sacrificed their annual vacations. While it may seem to be rather trite to mention these points, the fact is that if every physician gave one hour each week to active support of the local civil defense program there would be no occasion for this article.

At least some knowledge of historical facts regarding the protection of one's homeland is most valuable in civil defense work. In other words, a physician could profitably meditate on the activity of our forefathers who prepared this country for us, sacrificing even their lives so that those of us today could live in an atmosphere where freedom of speech, freedom of religion, the right of assembly and freedom of the press prevail. This might be said to be a necessary reaffirmation by the physician of his faith in the future of America. Having these fundamental attributes, the physician who would be a leader in civil defense must acquire the necessary basic knowledge concerning the medical effects of atomic weapons. Detailed knowledge of the entire field of nuclear energy and its impact upon modern civilization would be of utmost value, but a general knowledge is sufficient so long as the physician grasps the over-all picture of atomic warfare and the civil defense measures that are protection against modern weapons of destruction.

ACQUISITION OF PERSONNEL

The basic problems are those associated with taking care of unbelievably large numbers of casualties, produced within a matter of a few minutes' time and under most adverse conditions. Medical pioneers in the field of civil defense realize today that, regardless of all the scientific facts concerning nuclear weapons, people are the essence of a civil defense organization. It is fortunate that the physician desiring to enter the civil defense program now will not have to determine this for himself through months and years of trial-and-error. There is sufficient experience behind us to support the concept that material acquisitions for a civil defense program are secondary to the need for personnel.

Developing Participation.—A major objective for the physician, after properly orienting and informing himself in civil defense matters, is to instill in members of his own profession the philosophy that their participation in the medical-health division of civil defense agencies is a necessity. This interest is created through an educational program. In the past, physicians have spearheaded the educational program not only among their own colleagues but among all the groups. The process of education is aided tremendously by the appearance of physicians on the lecture platform, not only before medical societies but before service clubs, chambers of commerce, other professional groups, ancillary organizations, schools, and clubs—in fact, before all groups desiring information concerning civil defense and their participation in the program. This means that the physician desiring to be a leader in civil defense organization will have to create within his medical society a civil defense speakers bureau. Those who volunteer their services should have the ability to speak extemporaneously and with a delivery sufficiently dynamic to arouse their audience to such an extent that a percentage of them, at least, will become participants in the program. Obtaining cooperation in civil defense is a matter of selling, with success or failure depending on, with some exceptions, the ability to sell the program.

Creating Local Defense Committees.—When a sufficient number of physicians in a county or state medical organization have become interested in the civil defense cause, civil defense and disaster committees of these societies and associations should be formed. The creation of civil defense committees in rural areas is a fertile field for the new physician in the civil defense program. There is still much work to be done in this field, with the advent of thermonuclear weapons. Great responsibility rests upon rural communities for the protection of this country. This is borne out by the recent tests of thermonuclear weapons in the Pacific. Greater emphasis must be placed upon area and regional civil defense programing rather than our previous primary consideration of the target city. Not only should the physician stimulate interest in the formation of these committees in his own organization, but he can, as pioneers in this field have done before him, stimulate the creation of civil defense and disaster committees in other professional and lay organizations. Indoctrination is the next step.

METHODS OF INDOCTRINATION

Indoctrination and education are closely allied. The use of atomic exhibits is one of the best methods of creating interest and providing an instructional program. For anyone really interested in the atomic age, this is a pleasurable hobby. The material for exhibits is readily obtained and freely provided through the cooperation of the Atomic Energy Commission,

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Opinions stated are those of the author and not the official opinion of the Navy Department.

the armed forces, the Armed Forces Institute of Pathology, various instrument companies, Radio Corporation of America, the General Electric Company, and a multitude of other agencies. Good civil defense exhibits can be shown at medical meetings, state and county fairs, other professional and lay meetings, and wherever the physician may be giving a lecture, for example, at schools, parent-teacher meetings, or civil defense rallies. Obviously, the use of these exhibits must be integrated in a total, balanced civil defense picture. A film library is an invaluable item in an indoctrination armamentarium. These films are obtained from public and private concerns such as the Armed Forces Institute of Pathology, the Federal Civil Defense Administration, the American Medical Association, and various private concerns on a loan basis, or they can be purchased from commercial concerns by the local or state director of civil defense. These films cover the entire field of nuclear energy, atomic warfare, the medical aspects of atomic warfare, and civil defense.

For the indoctrination of the medical profession, many states have utilized the services of the extension departments of medical schools. Traveling teams of specialists are made available by the medical schools for lecturing to county medical societies on standardized procedures required for the care of mass casualties. In certain states the cooperation of medical schools has been stimulated by the key physician in the civil defense program, and the cost of the lectures has been divided between the medical school and the state civil defense agency. Physicians instructed by these teams have, in turn, provided the indoctrination for ancillary groups such as nurses' associations and dental and technicians' societies. The extension departments of many universities are most happy to cooperate in the provision of instruction to all those concerned with civil defense. Civil defense workshops, such as a recent one held at the University of Kansas, provide invaluable assistance to rural communities developing civil defense organizations. The physician should always make himself available for participation in such workshops and, in fact, should help stimulate the creation of these workshops.

DEVELOPMENT OF A FUNCTIONAL ORGANIZATION

Education and indoctrination should be pressed as a continuous program. After the preliminary phases of all education and indoctrination programs have been begun, however, the physician who desires to stimulate the activity of his colleagues in civil defense will come up against a Herculean task—the development of a trained operational organization. The physician new in the program will have the benefit of the years of experience of the pioneers in the field. The physicians who entered this program early have concluded now that a hard core of interested persons is more to be desired than scores of thousands of lukewarm adherents. The development of a trained operational organization can be accomplished only with the combined effort and participation of ancillary organizations such as the nurses' associations and dental and osteopathic societies. In the heart of America we have found that a loosely knit council composed of a representative physician, dentist, nurse, osteopath, veterinary physician, pharmacist, local medical civil defense deputy director, and the local director of public health (if he is not also the deputy director for the medical-health services) is the best way to produce combined interest and to obtain unified effort. This council coordinates all of the medical-health activities and is composed of the civil defense chairmen of local professional associations. All civil defense activities that require group action or create good will through a cooperative effort, are initiated and supervised by this council. The physician leading the medical civil defense effort in the community is the catalyst in this activity.

This council has proved to be the keystone of local success in medical-health activities in a midwestern city to an even greater extent than the usual advisory committees, which are an integral part of civil defense organizations. This is because the group is small, their motivation is great, and their activities are varied. When it was deemed appropriate in this particular community to classify all participants in the medical-health division, this group spearheaded the endeavor. The cooperation of each group, represented by members of the council, was obtained in the classification and issuance of identification cards to members of each representative organization. With the consent and approval of the local deputy director for the medical civil defense program, the members of all participating societies and associations were classified according to the over-all needs of the program. Each was assigned a specific duty but not given a specific duty station. (The subsequent course of events has proven this to have been a wise decision with evacuation of cities of major importance today.) The council was utilized when a national county medical society civil defense conference was held in their city. Each member of the council handled his own particular group. The council system could well be utilized in rural areas today. Such a council could be organized in each district of the state medical association. This group could spearhead the perfection of the civil defense organization in the rural areas.

There are endless tasks for the members of local auxiliaries. The physician wishing to be a leader in civil defense should, early, enlist the support of the women's auxiliary of the local medical society. He should seek the appointment of a chairman of civil defense and disaster committee among the auxiliaries of the medical and ancillary groups in areas in which such an auxiliary exists. In a certain midwestern city these women handled the entire registration of professional personnel, manning desks in each hospital in the city. Through these groups of women efforts can be extended to other women's organizations and to organizations such as the Parent-Teacher associations. I might say, at this point, that the Parent-Teacher associations in every school district in the United States could be a rallying point for civil defense activity.

Certain general procedures for stimulating medical civil defense activity can be instituted, for example, the designation of all drugstores as first-aid stations, the designation of an able man as a deputy director of the medical-health services of the state civil defense agency, the suggestion that councils of active groups be formed in each councilor's district of the state, the use of each school district as a center of recruitment and training of civil defense personnel, and the frequent publishing of articles on civil defense in state medical journals.

Encouraging Participation of Ancillary Groups.—Participation of physicians and allied groups and, as a matter of fact, of all groups in civil defense has been greatly accelerated in this midwestern city through semiannual, general mobilization exercises called "Operations Survival." The council, again, in these projects provides a medium for developing and disbursing operational directives for planning purposes prior to the exercise. The techniques utilized in "Operations Survival" in this midwestern city were for the most part developed by the physician most active in civil defense. The mobilization of all personnel, utilization of aircraft, the use of smoke bombs and aerial torpedoes in the predetermined devastated area, helicopter evacuation of the wounded, the use of high school students as simulated casualties, the assignment of physician and ancillary personnel to specific billets, the development of problems to be worked out and subsequent reports made to the deputy director for medical-health services or to the local civil defense department, and the development of the role of mutual aid and mobile support medical battalions was largely the result of recommendations by physicians. Creating a situation as near to reality as possible cannot be overemphasized as a means of providing the necessary training for an operational organization. This utilization of all personnel during the exercise creates interest by providing people with actual experience in the field. The mobilization of all personnel, and the utilization of aircraft, helicopters, smoke bombs, simulated casualties, etc., creates a realistic atmosphere for the indoctrination of the witnessing public and the active participants.

Stimulating Public Interest.—During the six months' interval between the training exercises here in Missouri, personnel are further recruited and trained. Interesting Boy Scouts and high school and college students in the civil defense program has been a great boon to the program locally. After attending indoctrination courses these young persons soon begin to bring their parents to the meetings. These fathers and mothers become members of the organization. With the exception of the

co-chiefs and instructors, our "RadSafe" units are made up largely of high school and college students. We stimulate interest among these young persons by holding frequent drills and by outfitting them with special "RadSafe" uniforms during the operational exercises. Because in uniform they resemble "men from Mars," our publicity is furthered, and increased interest is thereby created for the over-all civil defense program.

The physician leading the civil defense activity of his county medical society must make friends at all levels of civil defense. He should make himself very nearly indispensable through his enthusiasm, knowledge, and qualities of leadership. His contacts with the press must be of the best, and he must be able to recognize news of his organization that has a high reader interest and then follow through by seeing that these news items get into the daily newspaper. He should be able to express his thoughts in such a way that he will be asked by other divisions of the civil defense organization to prepare articles for publication in such official publications as *Peace Officers* and *Fire Chiefs Associations.* He should make every effort to appear on the programs of municipal league organizations where he will have as the recipients of his message mayors and city managers of the state. Those men are necessary converts before civil defense can function in every city, town, and village. Through his contact with public officials, he should continually insist upon a uniform policy and philosophy regarding civil defense from the highest in the governmental setup to the lowest elected official in the rural areas.

Training a Responsible Core.—The development of competent lieutenants is a major task for the physician who would assume a leading role in civil defense. This, as mentioned before, is the essence of the philosophy of a hard core of enthusiastic civil defense workers. The assumption of responsibility and leadership is, without doubt, the most crying need of civil defense today. The development of trained lieutenants is the most practical approach to the management problem in civil defense. The civil defense physician will succeed or fail in this accomplishment, depending upon his friendships within the medical fraternity and his dynamic leadership. The utilization of the services of young professional persons is a most wise procedure, giving them credit and publicity for their individual activity. For qualities of leadership and work well done, these young persons should be given duties requiring increased responsibility. They should be encouraged to attend national and state civil defense meetings, and their expenses should be provided by the local civil defense department or by their respective professional groups. This policy has been rewarding in our area. It is human nature for everyone to enjoy having his ego stimulated through recognition by his own group.

OPERATIONAL EXERCISES

A discussion in detail of a program for an operational exercise will be set down, because it is felt that this is of greatest importance in developing a good medical civil defense organization.

A modification of the Army method of evacuation is followed, that is, the use of the first-aid station, the collecto-clearing station, the temporary (or improvised) hospital, and the existing hospital. Only limited first aid is given at the first-aid station. Triage (sorting of patients), emergency lifesaving surgery, and decontamination are done at the collecto-clearing station. Some 30 days prior to the date set for the exercise, the deputy director of medical-health services of the local civil defense department and a few of his close advisors sit down to draw up the broad directives. A letter accompanying the field orders states the date and the purpose of the exercise and what is to be expected, in a general way, from each member of the medical-health division. A week prior to the date set for the exercise, a meeting of the co-deputy directors, sector chiefs, co-chiefs, hospital administrators and their executive assistants, and medical directors of mutual aid and mobile support units is held at the city hall. Here the final plans are discussed. The general field order is prepared by the deputy director of medical-health services of the local civil defense department and a few of his close advisors. This contains the general duties of doctors of medicine, doctors of osteopathy, dentists, nurses, pharmacists, veterinary physicians, public health personnel, morticians, transportation department personnel, sector chiefs, sector co-chiefs, specialists such as neurosurgeons, plastic surgeons, and oral surgeons, special groups such as optometrists, and mutual aid and mobile support units.

The hospital administrators or their designated representatives are responsible for the location and duty assignments of doctors of medicine. The existing hospital assumes responsibility for temporary hospitals located in high school buildings and collecto-clearing stations located in grade school buildings. Doctors of osteopathy are assigned to duty stations through the local college of osteopathy and surgery and man their own hospitals and dispensaries. Nurses are assigned to location and duty through the hospital administrator of the hospital at which they are regularly employed or, if not regularly employed by a hospital, through the chairman of the civil defense committee of the nurses' association who is also the chief of the section on nursing of the medical-health division of the civil defense department. Pharmacists are located and assigned through the hospital administrator by whom they are employed or, if not employed by the hospital, they serve as a part of the block organization at the drugstores where they are employed. If the drugstore at which they are usually employed is in the devastated area as outlined for the exercise, they then report to the administrator of an existing hospital located nearest to their personal location at the time of the air-raid warning (yellow alert). All public health personnel are assigned through the director of public health.

The sector chief assists the deputy director in coordinating all activities in the field. Sector co-chiefs, with their staff, have predetermined headquarters, and they have charge of the logistical support of the sector of the city over which they have jurisdiction and receive their instructions from the sector chief. One hospital, in particular, is assigned patients with special types of injuries requiring the services of neurosurgeons, plastic surgeons, or oral surgeons. All mutual aid and mobile support medical battalions are instructed to report to assigned staging areas, and they receive their duty instructions on arrival, from the sector chief or his representative. All co-deputy directors of medical-health services and observing medical personnel from mutual aid cities and towns report to the deputy director of medical-health services at the primary control center in the target city.

General field instructions are provided by the administrator of each hospital, indicating whether or not his hospital, for the purpose of a particular exercise, will or will not be destroyed and indicating the existing hospital, temporary hospital (high school), and collecto-clearing station (grade school) for which he will be responsible during the exercise. The hospital administrators prepare the detailed field directions for the installations under their supervision. This spreads out the responsibility and makes it necessary for lieutenants in the organization to assume responsibility for the execution of their particular role in the exercise. Block organization captains and their assigned assistants are responsible for all first-aid stations, including the recruitment of personnel to man them. It is their obligation to organize school teachers and leaders in Boy Scout and Girl Scout organizations and to instruct these young persons in the simulation of casualties for first-aid station and collecto-clearing station exercises. An operational problem is resolved at each installation during the exercise. This consists of determining whether predesigned floor plans for each facility can be integrated into the structure being used. Such items as plumbing and food service facilities are inspected. Casualties are received, evacuated, or provided care as indicated.

COMMENT

It would be most helpful to the physician desiring to be a leader in civil defense to attend one of the tests held at the Nevada Proving Ground or elsewhere. It may well be that not all who would like to attend such tests can do so; however, requests for attendance can be initiated through the local civil defense director. Having personally witnessed and taken an active part in one of these tests, the physician may rapidly become an "authority" in his local community.

RESULTS OF FIRST YEAR'S SURVEY OF PHYSICIANS LEAVING ACTIVE MILITARY SERVICE

The Council on National Emergency Medical Service on July 15, 1952, initiated a continuing opinion survey of physicians being released from active military service. This survey is being conducted through the questionnaire method, and the information obtained is being used as the basis for a series of conferences with representatives of the Department of Defense and the armed forces in an effort to improve further the utilization of medical personnel and in the formulation of a more effective voluntary officer procurement system. The first such conference was held at the Department of Defense on July 31, 1953, to discuss the results of the first six months of the survey.

A total of 3,948 completed questionnaires were returned to the Council during the first year of the survey (July 15, 1952–Aug. 1, 1953). This represents a return of about 70% of the questionnaires sent out during this period. (As of Dec. 1, 1953, a total of 7,174 questionnaires had been mailed, of which about 5,151 had been returned.) The comments and statistical data that follow are based on the results of the first year of the survey and are presented as a matter of general interest to the entire profession.

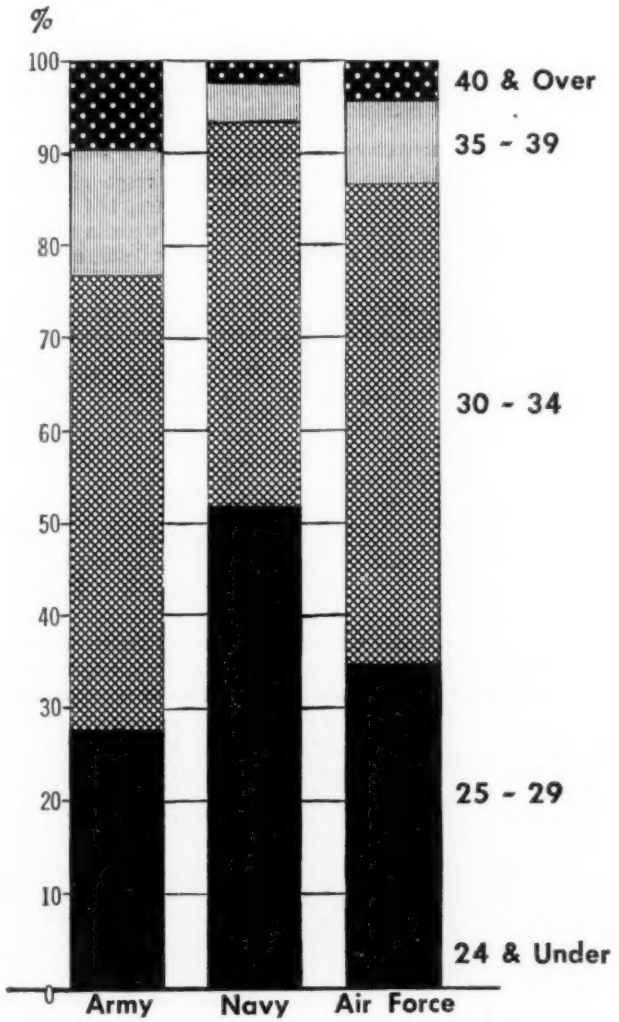


Chart 1.—Age distribution of physicians by branch of service. In the 24 and under group, the Army had none, the Navy 0.2%, and the Air Force 0.1%.

The questionnaire that was used during the first year of the survey had 37 questions and was designed to show (*a*) general information concerning the physician, i. e., his age, education, specialty training, experience, etc., (*b*) the extent of his military training, his branch of service, rank, current military status, and special military courses received; (*c*) the type of work performed while in service, the efficiency of utilization, the percentage of time spent on the care of military personnel, dependents, and others, staffing conditions for physicians and allied health personnel; and (*d*) comments and suggestions not only with respect to the armed services but also concerning the ways in which organized medicine can be of greater assistance to the physician in uniform. While much information is available from the questionnaire, only that which is considered to be of greatest general interest will be discussed in this summary. For convenience and clarity, comments, charts, and tables will be grouped under subtitles.

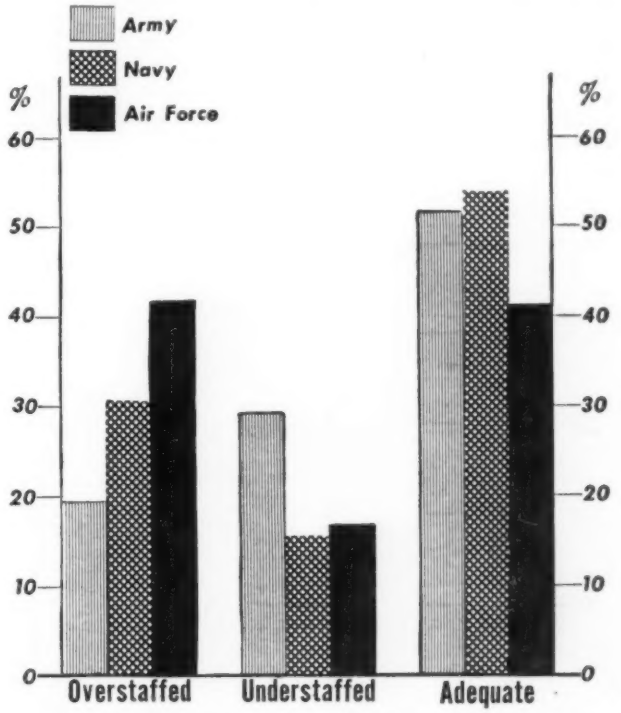


Chart 2.—Physicians' evaluation of medical officer staffs of the armed forces.

TIME SPENT IN SERVICE

The survey shows that the average total time spent in the service by those responding was 24.7 months, the average tour of duty in the United States was 7.6 months, and the average tour of foreign duty was 17.1 months.

AGE DISTRIBUTION BY BRANCH OF SERVICE

The largest age group, at time of separation, covered the ages 30-34; the second largest group was that covering ages 25-29. In terms of branch of the service, the 30-34-year-old group was the largest in the Army and Air Force, while the 25-29-year-old group was largest in the Navy. Likewise, there were more in the "40 and over" group in the Army and Air Force than in the Navy. Chart 1 shows the age distribution in detail.

PHYSICIANS' EVALUATION OF STAFFING CONDITIONS

A question was asked that was designed to obtain the opinion of physicians as to staffing conditions on their last three assignments while in military service. Some omitted any answer; others answered with respect to one, two, or three assignments. In the Army, approximately 19% thought there was overstaffing, 29% thought there was understaffing, and 52% thought the staffing was adequate; in the Navy, 31% thought there was overstaffing, 16% thought there was understaffing, and 53% thought the staffing was adequate; and in the Air Force, 42% thought there was overstaffing, 17% thought there was understaffing, and 41% thought the staffing was adequate. In terms of totals, 29% thought there was overstaffing, 20% thought there was understaffing, and 51% thought the staffing was adequate. Chart 2 shows this in graphic fashion.

DISTRIBUTION OF PHYSICIANS BY RANK AT TIME OF DISCHARGE

The survey indicates that the majority of physicians in all three branches at time of separation held the rank of captain or lieutenant senior grade. It is significant to note that a larger percentage of the lowest ranks, first lieutenant and lieutenant (j. g.), is found in the Navy than in the other branches, and there is a correspondingly lower percentage of grades above those levels in the Navy than in the other branches. The percentage of captains in the Air Force was much higher than in the other branches. Chart 3 shows these percentages in detail.

NUMBERS OF YEARS SINCE GRADUATION

The survey showed that by far the majority of those responding (78.8%) graduated from medical school between the years 1945 and 1949; the second largest group (9.6%) graduated between 1940 and 1944; and the third largest group (7.2%) graduated in 1950 and later. A few (4.4%) graduated before 1940. Table 1 shows the number of responses as well as the percentages.

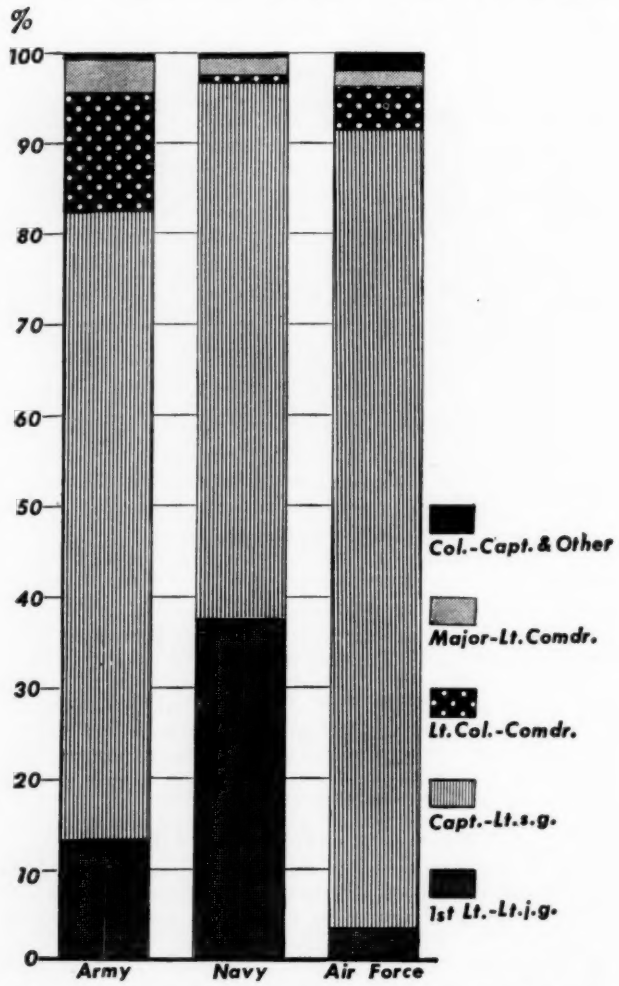


Chart 3.—Distribution of physicians by rank at time of discharge.

YEARS OF INTERNSHIP AND RESIDENCY

A majority of those responding (88.7%) had one year of internship training, while 27.6% had one year of residency, 26.9% had no residency training, 19.6% had two years of residency, and 15.3% had three years. Table 2 shows this in greater detail.

OCCUPATION AT TIME OF ENTERING SERVICE

A question was asked that was designed to elicit the type of occupation in which the physician was engaged at the time of his entrance on active duty, broken down by branch of service. The answers show that a majority were in residency training at the time of beginning service and the second largest group was in internship. The third largest group was engaged in general practice, and the fourth largest group was engaged in full-time specialty practice. The remainder were in other occupations, such as industrial practice and government service. Table 3 shows a detailed breakdown by branch of service.

TABLE 1.—*Number and Percentage Distribution of Physicians Graduating from Medical Schools in Selected Intervals*

Year of Graduation	No.	%
Before 1940	174	4.4
1940-1944	378	9.6
1945-1949	3,111	78.8
1950 and over	285	7.2
Total	3,948	100.0

TABLE 2.—*Percentage Distribution of Total Physicians by Years of Internship and Residency*

	Internship	Residency
None	0.1	26.9
1 yr.	88.7	27.6
2 yr.	10.6	19.6
3 yr.	0.4	15.3
Other	0.1	4.4
No response	0.1	6.2
Total	100.0%	100.0%

NUMBER OF PHYSICIANS HOLDING BOARD CERTIFICATES

The survey shows that a total of 270 of those responding hold American Board certificates. Of these physicians, 144 were in Army service, 69 were in the Navy, and 57 were in the Air Force. Specialties covered a number of different fields, of which the largest single number was in pediatrics, and the second and third largest were in internal medicine and surgery, respectively. By branch of service, a total of 10.5% of those responding in

TABLE 3.—*Percentage Distribution of Physicians According to Type of Practice at Time of Entering Military Service*

	Army	Navy	Air Force
Internship	23.9	27.6	15.5
Residency	31.3	44.3	38.2
General practice	20.6	13.5	27.7
Full-time specialty	13.6	4.8	9.5
Part-time specialty	1.9	0.8	1.5
Industrial practice	0.5	0.4	0.8
Government service	3.0	3.0	2.0
Other	5.0	5.2	4.4
No response	0.2	0.4	0.4
Total	100.0%	100.0%	100.0%

TABLE 4.—*Number of Physicians Holding Board Certificates by Field of Specialization*

	Army	Navy	Air Force
Pediatrics	24	13	13
Psychiatry and neurology	15	5	4
Orthopedic surgery	10	3	2
Dermatology and syphilology	2	2	..
Radiology	9	4	6
Urology	1	..	..
Obstetrics and gynecology	8	..	..
Internal medicine	16	5	6
Pathology	7	7	3
Ophthalmology	6	3	9
Otolaryngology	13	8	2
Surgery	17	7	1
Anesthesiology	2	2	1
Physical medicine and rehabilitation	..	..	1
Preventive medicine, Public Health Service	2	..	1
Plastic surgery	1	..	1
Neurological surgery	1	..	1
Certificate, not specified	10	10	6
Total	144	69	57

the Army, 4.1% of those in the Navy, and 6.7% of those in the Air Force had certificates. A total of 6.9% of all branches, who responded, had board certificates. Table 4 shows the detailed numbers by specialty and by branch of the service.

RESERVE STATUS

Most of the physicians responding indicated that they still had their reserve commissions. The percentage of those who retained their commissions was somewhat higher in the Navy than in the Army or Air Force, as table 5 shows in detail.

TABLE 5.—*Percentage Distribution of Physicians According to Reserve Status*

	Army	Navy	Air Force
Retained commission	87.9	96.5	92.3
Dropped commission	11.0	2.9	6.1
No response	1.1	0.6	1.6
Total	100.0%	100.0%	100.0%

GOVERNMENT MEDICAL EDUCATION RECEIVED

A majority of those responding (3,194) had received assistance in their medical education from the government. A total of 754 said they had received no assistance. The program under which the largest number had received assistance was the Navy V-12 program, while the next largest number received assistance under the Army Specialized Training Program. Some received training under the G.I. programs, and several listed a combination of various programs. Table 6 shows these percentages in detail.

TABLE 6.—*Percentage Distribution of Physicians by Type of Government Medical Education Received*

	Army	Navy	Air Force
A. S. T. P.	30.3	3.7	32.7
Navy V-12	8.5	58.3	18.2
G. I.	8.5	5.0	4.7
A. S. T. P. and G. I.	16.9	2.8	18.7
V-12 and G. I.	5.6	18.5	3.6
Other	1.6	1.4	1.2
No assistance	28.6	10.3	20.9
Total	100.0%	100.0%	100.0%

TRAINING RECEIVED WHILE IN SERVICE

A total of 1,371 of those who served in the Army, 1,691 of those in the Navy, and 856 of those in the Air Force stated that they had received additional training, or experience in service schools, including the Medical Field Service School, the School of Aviation Medicine, Amphibious Forces Training, etc. Table 7 shows the detailed distribution of physicians by type of training received and by branch of service.

TABLE 7.—*Number and Percentage Distribution of Physicians by Type of Government Medical Training Received*

	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
R. O. T. C. medical school	296	21.6	105	6.2	37	4.3
Basic course, medical field service school	561	40.9	143	8.5	89	10.4
Advanced course, medical field service school	19	1.4	7	0.4	11	1.3
Command and general staff school	6	0.4	4	0.2	..	...
Industrial College of the Armed Forces	...	....	1	0.1	1	0.1
National War College	...	....	1	0.1	..	...
School of Aviation Medicine	16	1.2	91	5.4	271	31.7
Marine medical officers training	...	....	106	6.2	1	0.1
Marine field service training	3	0.2	106	6.2	1	0.1
Amphibious force training	10	0.7	130	7.7	2	0.2
Air university	...	....	1	0.1	21	2.5
Other schools	151	11.0	203	12.0	118	13.8
No response	309	22.6	793	46.9	304	35.5
Total	1,371	100.0	1,691	100.0	856	100.0

PHYSICIANS' EVALUATION OF MEDICAL MILITARY TRAINING

A majority of the physicians filling out the questionnaires felt that all important features of military medical training had been covered. A small number stated the training was unsatisfactory, with no reason given; others stated it was unsatisfactory and gave reasons. About 20% did not respond. Table 8 indicates percentages by branch of service.

TABLE 8.—*Physicians' Evaluation of Military Medical Training*

	Army, %	Navy, %	Air Force, %
Satisfactory	58.3	49.1	57.0
Unsatisfactory, no explanation	1.2	0.7	0.6
Unsatisfactory, insufficient training in:			
Military customs, Administration regulations, etc.	4.1	3.3	4.0
Basic orientation and indoctrination	8.7	12.0	8.6
Military medicine	3.9	4.1	2.0
Field duty	3.8	2.1	1.2
Miscellaneous	2.8	4.0	4.5
No response	17.2	24.7	22.1
Total	100.0	100.0	100.0

PHYSICIANS' EVALUATION OF ASSIGNMENT

A large majority of the physicians indicated they were properly assigned; however, a less decisive majority responded favorably to the question as to whether they were properly rotated.

TABLE 9.—*Physicians' Evaluation of Assignment*

	Army, %	Navy, %	Air Force, %
Properly assigned	82.3	79.5	81.9
Not properly assigned	16.5	19.1	17.2
No response	1.2	1.4	0.9
Total	100.0	100.0	100.0

TABLE 10.—*Physicians' Evaluation of Rotation*

	Army, %	Navy, %	Air Force, %
Properly rotated	46.4	69.9	39.6
Not properly rotated	51.4	27.6	58.8
No response	2.2	2.5	1.6
Total	100.0	100.0	100.0

TYPES OF ASSIGNMENTS

A question was included that was designed to determine the amount of time spent by physicians in service on various types of assignments. Many of the respondents neglected to answer the question, and others answered it only in part. For this reason this analysis has been confined to the replies indicating the amount of time spent on the treatment of military personnel and their dependents in the United States and overseas. The survey shows that, in terms of percentage distribution by allocation of duties, of those assigned to domestic duty stations, 53.4% were engaged in medical care of military personnel, 28.3% in care of dependents of military personnel, and 18.3% in "other," while of those assigned to overseas duty stations, 51.8% were engaged in medical care of military personnel, 23.8% in care of dependents of military personnel, and 24.4% in "other."

The following tables reveal these percentages in detail and by branch of service.

TABLE 11.—*Percentage of Time Spent in Treating Military Personnel, Etc.*

Medical Care of:	Domestic	Overseas
Military Personnel	53.4	51.8
Dependents of Military Personnel	28.3	23.8
Others	18.3	24.4
Total	100.0%	100.0%

TABLE 12.—*Percentage of Time Allotted to Military Personnel*

Percentage of Time:	Domestic			Overseas		
	Army	Navy	Air Force	Army	Navy	Air Force
0-19	11.3	14.1	20.6	9.4	11.2	10.6
20-49	21.7	31.0	40.5	27.4	29.2	39.6
50 and over	67.0	54.9	38.9	63.2	59.6	49.8
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE 13.—*Percentage of Time Allotted to Dependents of Military Personnel*

Percentage of Time:	Domestic			Overseas		
	Army	Navy	Air Force	Army	Navy	Air Force
0-19	47.3	52.4	27.5	55.8	56.3	42.5
20-49	35.6	29.9	39.7	29.3	34.4	39.2
50 and over	17.1	17.7	32.8	14.9	9.3	18.3
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TYPES OF NONMILITARY MEDICAL CARE PROVIDED

Questions were included that were designed to determine the type of medical care provided by physicians in uniform for other than military personnel. The answers disclose that in the Army and Navy the type of medical care most frequently provided was outpatient care, while in the Air Force it was obstetrics and gynecology. Table 14 shows percentages and types of care in detail.

TABLE 14.—*Distribution of Physicians by Type of Nonmilitary Medical Assignments*

Type of Assignment	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
Internship and residency	29	2.6	46	3.1	7	0.9
General medical and hospital care	171	15.2	289	19.6	94	12.0
Obstetrics and gynecology	214	19.0	265	18.0	220	28.2
Surgery	47	4.2	44	3.0	34	4.4
Other specialty services	200	17.8	202	13.7	111	14.2
Outpatient care	327	29.0	401	27.3	216	27.6
Contagious diseases	4	0.3	3	0.2	2	0.3
Assignment not specified	134	11.9	222	15.1	97	12.4
Total	1,126	100.0%	1,472	100.0%	781	100.0%

DUTIES THAT COULD HAVE BEEN PERFORMED ADEQUATELY BY OTHER PERSONNEL

A total of 3,448 physicians answered the question pertaining to duties that could have been adequately performed by other personnel. Of this number, 1,482, or 43.1%, stated their duties could not have been performed adequately by other personnel, while 1,966, or 56.9%, stated their duties could have been performed by other personnel. By branch of the service, 41.4% in the Army, 49% in the Navy, and 65.7% in the Air Force stated their duties could have been performed by other personnel. Those who so stated gave the information shown in table 15.

TABLE 15.—*Distribution of Physicians Indicating Possible Transfer of Duties to Other Personnel*

Possible transfer to:	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
Nurses	9	1.6	8	1.0	3	0.5
Enlisted personnel	18	3.2	20	2.4	5	0.9
Civilian medical personnel	451	79.5	638	77.1	455	81.0
Health personnel other than physicians	84	14.8	156	18.8	96	17.1
Personnel not specified	5	0.9	6	0.7	3	0.5
Total	567	100.0%	828	100.0%	562	100.0%

PHYSICIANS WHO WOULD VOLUNTARILY REMAIN IN SERVICE

The question was asked, "Are there any conditions under which you would have been willing to serve beyond the required two years?" In response to this question, 1,676 physicians, or 42.5%, indicated they would not be willing to stay in service for more than their two years of obligated service under any circumstances. A total of 2,144, or 57.5%, answered "yes" to the question. By branch of service, the following percentages answered "yes": Army, 54.8%; Navy, 55.6%; and Air Force, 52.7%. The reasons or conditions given are shown in table 16.

TABLE 16.—*Distribution of Physicians Indicating Conditions of Voluntary Extension of Service Beyond Two Year Requirement*

Conditions	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
Total war	369	49.1	432	45.9	233	51.7
Higher rank available	36	4.8	46	4.9	43	9.5
Opportunity to practice specialty or better assignment	110	14.6	158	16.8	34	7.5
Living quarters for family	15	2.0	10	1.1	8	1.8
More definite assignment	71	9.4	97	10.3	47	10.4
Compulsory service	41	5.5	44	4.7	18	4.0
Miscellaneous reasons	87	11.6	131	13.9	62	13.8
No reason given	23	3.0	23	2.4	6	1.3
Total	752	100.0%	941	100.0%	451	100.0%

SUGGESTIONS FOR IMPROVEMENT OF SERVICE OF MEDICAL ASSOCIATIONS TO PHYSICIANS IN MILITARY SERVICE

The final question asked was how the national and local medical associations can keep in closer contact or render better service to their members while they are serving as physicians in the armed forces. The response to this question was small, only about 65% answering at all, and a much smaller percentage giving any suggestions.

Suggested activities are shown in table 17.

TABLE 17.—*Suggestions for Improvement of Service Given by Medical Associations to Military Physicians*

Suggested Society Activities	Army	Navy	Air Force
More information, newsletter, etc	106	76	41
Personal visits by civilian physicians to evaluate grievances	205	235	130
Invite military physicians to civilian medical meetings	49	67	48
Assist in locating a position after discharge	17	15	7
Assist in preventing evasion of military service	54	54	8
Distribution of questionnaires to physicians in service	48	59	38
Provide specialists for clinical conferences	23	24	16
Total	502	530	288

The final portion of the questionnaire, which was reserved for "remarks," was filled out by comparatively few physicians. The comments that were made were usually very general in nature. Divided into two broad categories, i. e., "satisfied with military service," or "dissatisfied with military service," a total of 154 expressed dissatisfaction, whereas 406 said they were satisfied.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Malpractice: Liability of Hospital, Resident, and Staff Physician.—An action for damages was brought by a minor child and his father against the Ramsey County Welfare Board as operator of the Ancker Hospital, a resident physician in the employ of the hospital, and a senior attending staff physician. From verdicts and judgments in favor of the plaintiffs, the three defendants appealed to the Supreme Court of Minnesota.

In June, 1947, Michael Moeller, 5 years of age, accidentally sustained a simple fracture of the middle third of the right femur and was taken to the Ancker Hospital in St. Paul. This hospital is operated by the Ramsey County Welfare Board primarily for indigent persons who are in need of medical care and cannot pay for it. Those who are able to pay the hospital costs, however, are required to do so, and Michael was classified as a pay patient. The defendant hospital employs and pays resident doctors, interns, and nurses. The resident doctors, as a rule, are fully licensed physicians. They are assigned to supervise the interns in providing the details of medical service, physical examinations, and necessary treatment with which the interns are charged; to assist them when their experience or practice is not sufficiently advanced so that they can perform their duties unaided; and to report to the attending staff the progress and the effects of treatment. In addition, the resident is at the hospital to perfect himself in the specialty of his choice, and part of his activities have to do with studies directed toward that end. The resident doctors rotate in the divisions of service about every six months. The staff doctors have established practices and maintain offices in St. Paul. They are appointed by the county welfare board after approval by the executive committee of the hospital. The staff doctors, for purposes of administrative and professional efficiency, are divided into various divisions, such as surgery, orthopedics, and internal medicine, and they rotate between the various services and change regularly. The medical staff has its constitution, bylaws, and rules and regulations, which have been approved by the county welfare board. Paragraph 3 provides that patients shall be assigned to divisions and services by the superintendent; paragraph 4 provides that final responsibility for the care of patients shall rest with the senior attending physician to whom the cases are assigned. During the period from May 31 to June 30, 1947, the defendant staff physician was the senior attending physician assigned to the fracture service at the hospital. As such senior attending physician, he assigned incoming patients to the particular doctors on the service, and he assigned the care of Michael to himself as attending physician. The practice was for each attending physician to retain in his care patients assigned to him until these patients were discharged, even though the term of service of the doctor on the particular service had expired at some earlier time.

When Michael was taken to the hospital on June 6, 1947, he was given emergency treatment in the hospital receiving room, and it was determined that he had a simple fracture of the femur of the right limb. Dr. Windmiller contacted the defendant staff physician regarding Michael's injury, and the defendant staff physician advised Dr. Windmiller to use the Bryant method of overhead traction. The defendant staff physician testified that he saw Michael on the following day and that he saw him probably six or seven times between June 7 and June 30. On July 1 the residents and interns were rotated in the customary manner, and the defendant resident replaced Dr. Windmiller as the resident doctor assigned to the fracture service. The defendant resident testified that on coming into the service on July 1 he examined Michael and determined that the traction had slipped. He therefore removed and reapplied traction. He said that he saw the boy at least once and usually twice a day between July 1 and July 10 and that at those times he always inspected the foot to see if the color was all right, if the toes were warm, if the boy could wiggle his toes, if there was any swelling, and if the bandage was loose. The defendant resident testified that he did not see the defendant staff physician between July 1 and July 10, but that there had been no reason to call him. The record does show, however, that on July 7 a punctate rash, similar to a rash that had previously developed some time after he entered the hospital in June, developed on Michael's chest and abdomen. At 8 a. m. that day his temperature was 100.2 F, at which level it remained until about 8 p. m., when it was 101.6 F. On the morning of July 8 his temperature was 101 F. At 6 p. m. that day it was 103.8 F. He was given penicillin, and on the morning of July 9 his temperature had dropped to 100.2 F. On July 10, his temperature varied from 99.6 F to 100.6 F. On July 10 Michael complained of pain, and the defendant resident removed traction. He found that a severe pressure sore, caused by localized and continued pressure which cut off circulation, had developed at the top of the foot. There was an area of ulceration and necrosis, where the skin had come away, that measured about 2 or 2½ in. (5.1 or 6.4 cm.) in diameter and included the tissue just beneath the skin. The tendons were exposed, and at least one tendon was injured. Michael remained at Ancker Hospital until the wound was cleaned up, which was Aug. 2, 1947, at which time he was removed to St. Mary's Hospital in Rochester. When he arrived there, a skin graft was performed to cover the raw area, and Michael remained at St. Mary's until Aug. 28, 1947. On June 14, 1948, he was again hospitalized, and an operation was performed on the tendons of the foot using an unharmed portion of the extensor tendon of the great toe as a cable graft and sewing the same into the anterior tibialis tendon in an effort to restore its continuity. On Aug. 10, 1948, a skin graft was again performed on an ulcer that had developed in the old skin graft.

Because each defendant presented somewhat different contentions, the court said that it was necessary to consider each case separately in connection with the question of negligence involved. The defendant resident contended that the evidence did not support the finding that he was negligent. He pointed out the testimony of expert witnesses to the effect that the treatment he gave the patient from July 1 to July 10, 1947, was in accordance with the usual practice of the average careful physician in the community. He also relied on the testimony of these expert witnesses that pressure sores are common in cases in which the patient is in traction and that pressure sores will develop in spite of the exercise of due care. It is our opinion, said the Supreme Court, that the finding of negligence against the defendant resident is amply supported by the evidence in the record. Whether the defendant resident was actually as attentive as his testimony indicated was a question for the jury. There was direct testimony by the plaintiffs' witness that a pressure sore of the serious nature suffered by Michael would not have occurred if he had received care in accordance with the practice of an ordinary physician and surgeon in good standing in the community. While the testimony of the various doctors was to a certain degree conflicting, the jury could have found that this sore resulted from pressure that continued at least two days, commencing as early as July 8, and that earlier discovery would have prevented much of the damage. There was also testimony that earlier discovery would have been made if there had been proper examinations. The testimony indicated that the principal danger to be guarded against while a patient is in traction is the development of pressure sores, and that the main purpose of daily examination is to check against pressure points. However, concluded the court, we cannot, in view of the record here made out, agree that the jury's verdict was without ample evidence to support it. The defendant resident contended that the failure of the court to give certain requested instructions constituted reversible error. The defendant requested an instruction to the effect that the fact that a certain practice was or was not followed by the plaintiffs' expert or his associates in the Mayo Clinic was not conclusive; that the defendant resident's treatment of the case was not necessarily to be judged by the standards of the Mayo Clinic; and that the defendant resident was required to possess only the skill and

learning possessed by the average member of his school of the profession in good standing in his locality, and to exercise that skill and learning with due care. It is well settled, said the court, that a physician or surgeon is not an insurer of a cure or a good result of his treatment or operation. He is only required to possess the skill and learning possessed by the average member of his school of the profession in good standing in his locality and to apply that skill and learning with due care. The jury was instructed as to the proper standard to be applied. It heard various witnesses testify as to what care was required by this standard, and it was free to draw its own conclusion. A careful examination of the court's instructions satisfies us, the court concluded, that the charge as a whole conveyed to the jury a clear and correct understanding of the law of the case as it pertained to all the parties involved.

The trial court ruled that the Ramsey County Welfare Board, as operator of the defendant hospital, was liable for the negligence of the defendant resident under the doctrine of *respondeat superior*. It was the position of the welfare board that the hospital is not liable for the negligence of a resident physician or surgeon with respect to matters relating to the patient's medical care. The board argued that the defendant resident was under the authoritative control of the defendant staff physician; therefore, that the hospital could not be liable under the doctrine of *respondeat superior*. While it appears from the record that the staff doctors have the final responsibility for the care of patients and that they supervise the activities of the resident doctor to some extent, there is nothing to indicate that this supervision extends to the duties which the residents perform as a part of general hospital routine. It is apparent from the record, said the court, that the jury determined that the defendant resident's negligence was in his failure to properly perform these routine services. The welfare board cited cases supporting the proposition that a hospital is not liable for the negligence of physicians while they are acting in a professional capacity, and it was said that the relation between a hospital and its physicians is not that of master and servant. It is well established in this state, said the Supreme Court, that a hospital, private or charitable, is liable to a patient for the torts of its employees under the doctrine of *respondeat superior*. It does not seem reasonable to us to characterize a resident doctor such as the defendant resident as an independent contractor while he performs the routine hospital functions for which he is hired. While the record on this phase of the case is not as detailed as might be desired, it is clear that the residents are paid employees of the hospital. They are assigned to supervise the interns in providing the details of medical service, physical examinations, and necessary treatment with which they are charged; to assist the interns when their capabilities are not sufficiently advanced so that they can do the service themselves; and to report to the attending staff the progress and effects of the treatment. That the defendant resident's duties consisted of providing routine hospital medical service between July 1 and July 10 is made clear by his testimony that he had no reason to consult the defendant staff physician. The relationship of a resident to the hospital is not unlike that of an intern or nurse. All three groups are specially and highly trained. All three are engaged in supplying the element of trained medical care that distinguishes a hospital from a hotel. Under these circumstances, said the court, we must hold that a resident doctor in a hospital who receives his compensation from the hospital while providing medical care as a part of regular hospital routine is a servant of the hospital, so as to make the hospital liable for his negligence under the doctrine of *respondeat superior*.

Finally, said the court, we are brought to a consideration of the contentions of the defendant staff physician. He claims that the mere fact that he was on the hospital staff and that certain resident doctors and interns were subject to his general supervision did not make him liable for their acts and conduct. An examination of the court's instructions, said the Supreme Court, satisfies us that the question of the liability of the defendant staff physician was made to depend on a finding that he himself had been guilty of negligence. The fact is undisputed that the defendant staff physician did not visit Michael during the period from July 1 to July 10, 1947. He explained that he had not seen Michael between July 1 and July 10 because, when he made his last visit on June 30, he left word with the charge nurse who accompanied him at the time that the traction was to be removed, a splint applied, and the boy sent home. Since he thought that these instructions had been carried out and the boy discharged, he did not return to see him until he was called on July 10. He had not been called with reference to the case prior to that time since last seeing the boy, and he had not inquired whether these instructions had been carried out. The head nurse for the fracture department during June and July testified that each department of the hospital has its own order book, into which are put the orders for each patient that the doctors want the nurses to carry out. She said that if the order to discharge Michael had been given to her it would have been carried out and that if it had been given to someone else and appeared in the order book it would have been carried out. In our opinion, said the court, the evidence made the question as to whether the defendant staff physician had ordered the discharge of Michael on June 30 a fact question for the jury. Under the circumstances relating to the order of discharge, in which the doctor did not recall the name of the nurse to whom he claimed that he gave the order; no nurse testified that she received such an order; and the record book showed no entry of such an order, the jury reasonably may have placed little credence on the defendant staff physician's explanation as to why he failed to visit Michael after June 30. Could the evidence support a finding that there was a breach of duty on the part of the defendant staff physician which was the proximate cause of Michael's injury? It seems clear, said the court, that the jury could have found that the injury to Michael's foot was caused by the failure to make a proper examination at a time when the pressure sore was still superficial. The jury could have found from the evidence that a proper examination of the foot on July 8, or July 9, or even on July 7, when a rash and temperature developed, would have prevented most of the damage to the foot. It is true, as the defendant staff physician argues, that Michael was housed in an excellent hospital and was under the care of a qualified physician and nurses. We cannot say, however, said the court, as a matter of law, that an attending physician has no duty to call on a patient merely because he is receiving medical care in a hospital. The question for the jury was whether the defendant staff physician had used the degree of skill, care, and vigilance that the average doctor in good standing in the locality would have used under similar circumstances. Bearing in mind the relationship between the defendant staff physician and his patient and the fact that he had not seen him since June 30, it is our opinion that the jury could have found that by this standard the doctor was under a duty to see Michael sometime prior to July 10 and that the breach of this duty was the proximate cause of the injury.

We have considered the record in this case with great care, the Supreme Court concluded, being fully cognizant of its importance not only from the standpoint of the doctors, who constantly perform great humanitarian services for the benefit of their patients, and the hospitals, which furnish a necessary haven for sick and injured people, but also from the standpoint of the patients and the public as well. It is elementary that as an appellate court we cannot pass upon fact situations; we can only determine whether the law has been properly applied. The questions of the duties, care, treatment, and responsibilities of the defendant doctors and the county welfare board were for the jury. The situation is an unusual one in a malpractice action. Outstanding doctors from two fine hospitals in which the patient received medical treatment differed seriously as to the proper treatment of the patient in order to minimize the possibility of pressure sores that might develop. The jury heard all the testimony and the conflicting views of the doctors, and it was for them to decide the questions of negligence and the amount of damages.

Accordingly the judgments in favor of the plaintiffs and against the defendants were affirmed. *Moeller et al. v. Hauser et al., Moeller v. Lofquist et al., Welfare Board of Ramsey County, 54 N.W. (2d) 639 (August, 1952).*

MEDICAL FILM REVIEWS

Respiration: 16 mm., black and white, sound, showing time 12 minutes. Consultant: F. L. Fitzpatrick, Ph.D., Columbia University. Produced in 1953 by and procurable on purchase ($56.00) from United World Films, Inc., 1445 Park Avenue, New York 29.

This film uses animated diagrams to illustrate the movements of external respiration and the chemistry of gaseous exchange in the lungs. There is also an animated diagram to indicate the passage of oxygen from the capillaries into the substance of voluntary muscles. The movements of the rib cage are shown in a very elementary and incomplete manner with no details as to particular muscles other than the diaphragm and no indication of the extremes of rate and amplitude that can be achieved. The shape and action of the diaphragm is a difficult thing for an elementary student to grasp without the aid of three dimensional models or without a dissection of animal and human material. In this film, it is seen only in diagram from the front view and its motion is so limited that few, if any, students would surmise how it really works. The opening pictures of racing athletes are the only scenes in which actual human bodies are shown, and the opportunity to exhibit an athlete in severe hyperpnea immediately after violent exercise was overlooked. The relation of the race to respiration is not explicitly stated. The phrase "are lashed," applied to the cilia of the mucous membrane, is misleading because their movement is active, not passive, and they move very much more rapidly than was suggested by the diagrams. The statement about the pleura would not be clear to anyone who did not know from other sources what the narrator is trying to say, and there was nothing in the diagrams to indicate that the two bronchi subdivide into smaller and smaller ramifications. The narration relating the two voluntary muscles referred to muscle cells in a way that would certainly cause the student to confuse voluntary muscle fibers (each of which has many nuclei associated with it) with cells. The distinction is important, because it constitutes an essential difference between voluntary and involuntary muscles. It is regretted that the author did not show the respiratory activity of a swimmer, since, in swimming, the performance is often limited by the rate of respiration, and the swimmer who insists on breathing only through the nose cannot compete with those who learn to inhale quickly through the mouth. There was some confusion in the portions describing the movement of various types of molecules through the epithelium by the blood and alveolar air. This film might be shown as a very superficial introduction to the subject of respiration in classes at seventh or eighth grade level.

Cancer: A Research Story: 16 mm., color, sound, showing time 28 minutes. Produced in 1953 by Tele-Programs, New York, for the American Cancer Society. Procurable on loan from local units of the American Cancer Society.

This is a documentary film presenting distinguished investigators in five avenues of research. It is narrated by Dr. Charles S. Cameron of the American Cancer Society. Beginning with Mendel's experiments in heredity, Dr. Clarence C. Little explains in location-shooting his work in genetics, which has established the extent of genetic and chromosomal influences on the development of certain animal cancers. From genetics the story then goes to the work in the field of hormones. Dr. Charles Huggins of the University of Chicago demonstrates some of his work in this field. From hormones the next step is to a study of carcinogens. Dr. Lewis F. Fieser, Sheldon Emery Professor of Organic Chemistry at Harvard, explains his work in a study of the structure of chemical compounds that produce cancer and his current work in seeking steroids related to cholesterol formed within the body, which may prove to be cancer producing. Then, chemotherapy is demonstrated by Dr. C. P. Rhoads of the Memorial Cancer Center, New York. Dr. John Bittner, Professor, Division of Cancer Biology, Medical School, University of Minnesota, explains his work in the field of heredity and virology, using his "mouse-milk" factor as proving the existence of a transmissible factor in the milk of mice, which apparently is responsible, to some degree, for the development of mammary cancer in his animals. The cycle, as Dr. Cameron explains, is but a short step from the hereditary factor to the Mendelian theory.

This is an excellent picture, and it should raise a hope instead of inducing cancerphobia. In addition, it affords the viewer an opportunity to hear about progress in cancer research and the arising hope of cancer cure from the lips of experienced researchers in the field, men whose names are well known internationally. The use of nonprofessional actors lends authenticity to the presentation. As a film production, it is very well done and it can be recommended for lay audiences.

THE LEISURE CORNER

MODERN-DAY ARCHERY

Archery is the oldest sport known to man. Unlike such modern sports as baseball, football, and bowling, it was not conceived initially as a sport. Archery evolved as a result of man's primary instinct to protect himself from wild animals and from his archenemy and target—man himself. During the reign of the earliest Pharaohs, Egyptians first used the bow and arrow against their Persian enemies. So successful were they that military tactics underwent a profound change. Centuries later, historians were to assert that the entire history of Europe would have been different had the English not developed expert archers to defend the homeland against the vigorous onslaught of French invaders.

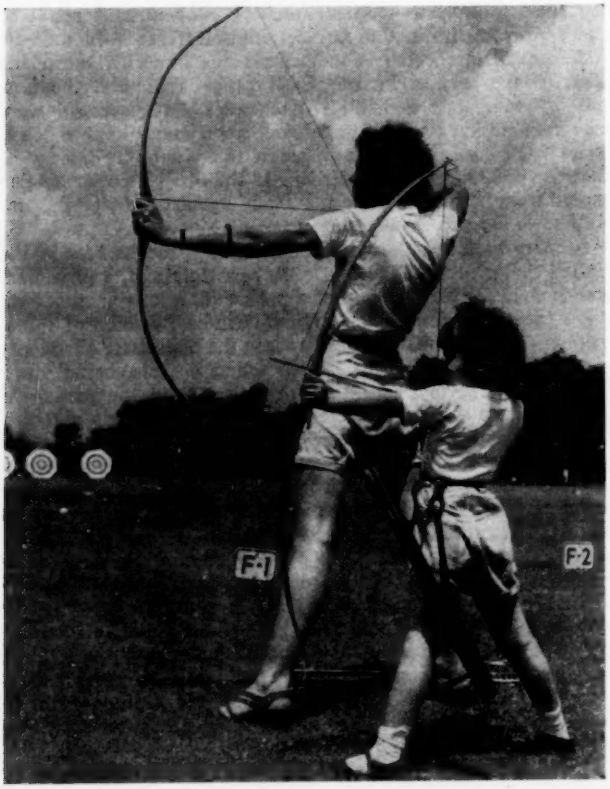
Archery as an organized sport literally made its bow in the United States in 1828, when Dr. Robert Eglesfeld, a physician, and Samuel Griffitts Jr., son of a physician, in conjunction with three friends, organized the Club of United Bowmen of Philadelphia. The past two decades has seen the popularity of archery in the United States grow by leaps and bounds, being transferred from the lawns of the Gay Nineties to the parks, the fields, and the woods, where thousands of Americans not only enjoy the sport for its own sake but keep physically fit by shooting arrows at a multitude of targets. Not the least of the reasons for the growth of the sport is the fact that mastery of archery is sufficiently challenging to most hobbyists to warrant sustained interest for prolonged periods of time. Contrariwise, archery has not become more popular precisely because some people have the mistaken notion that archery is a child's game to be indulged in by those who aim to imitate Robin Hood or want to play "cowboys-and-Indians." Nothing could be further from the truth. Actually, if the English bowman is the archer's forebear, as many persons consider him to be, archery should then be thought of as the true sport of the common man. In this sense, archery stands out in contrast to all other sports that have their roots in antiquity.

Modern-day archery is divided roughly into three classes: target archery, field archery, and flight shooting. Target archery supplies the basic skill for proficiency in the sport; it is only after an archer has mastered the fundamentals of target archery that he can be considered adequately prepared to attempt field archery or flight shooting. Interest in field archery and in hunting game has grown considerably in recent years because there is a sporting quality to shooting with a bow. To hit a desired mark requires coordination, skill, physical strength, and a knowledge of range and wind. Flight shooting is a highly technical, specialized art, requiring specially constructed bows and arrows.

Like other competitive sports, archery is enjoyed most when a number of its devotees band together to form a club. The center of such a gathering is, necessarily, the archery range or shooting ground, where archers can enjoy one another's good-natured banter and exchange alibis for misses and near-misses. In many towns and cities, archery ranges are located in public parks; in smaller communities where for one reason or another space is unavailable, land may be leased for the purpose. In general, it is best that an archery range be situated on flat, level ground, with its long dimensions running north and south and the target placed at the north end, so that the sun never shines directly into the eyes of the archers. Unless a range is located

in a secluded spot, provisions should be made to prevent passers-by from wandering across the field of action, for bows and arrows are deadly weapons.

In target archery, archers shoot at given distances at a standard target. The distance and the number of arrows shot are usually set by the "round" the archer selects. Rounds, which are actually formal plans for organizing shooting into definite schedules, are so set up as to permit men, women, and children to develop their skill without unduly taxing their physical strength. Hence men shoot at 40, 50, 60, 80, and 100 yd.; women shoot at 30, 40, 50, and 60 yd.; and members of the youngest generation shoot at 20, 30, 40, 50, and 60 yd. Instead of aiming and shooting at human targets, modern-day archers shoot at a 4-ft. target, which is mounted on a stand similar to an easel. The target is made of straw, with an attached paper face on which concentric circles of gold (at the center), red, blue, black, and white are printed. Scores are counted as follows: gold 9, red 7, blue 5, black 3, and white 1. Archery differs from other target sports in that the size of the target does not change with the distance. It only appears smaller at the



larger ranges. In tournament shooting, archers shoot six arrows before they go down to the target to retrieve. These six arrows constitute an "end." Archers usually reckon rounds in the number of ends shot at each distance. Rounds are established by usage and regulation to be a certain number of ends at each of several distances.

Bows average from 5 to 6 ft. in length for use by average adults. Most target bows vary from 5 ft. 10 in. for a 28-in. arrow, to 5 ft. 3 in. for a 24-in. arrow. The weight of a bow is important. A beginner with a bow that is too heavy is soon discouraged, and even an experienced archer may ruin his shooting by over-bowing. On the other hand, there are advantages to shooting a heavy bow—the arrow travels faster, and the bow is less affected by inclement weather. The weight of men's hunting bows are usually upward from 55 lb., with women using bows weighing from 20 to 30 lb. The arrows have small value in themselves, but a closely matched set of a dozen arrows, all of which fly exactly alike and which fly properly from the owner's bow, will give years of satisfaction and provide the archer with confidence in his ability as an archer.

Archery is a most suitable competitive sport for the physician and his family. This is true of relatively few other sports. The sport serves to get its devotees out into the open, without taxing the physical strength of the average person unless he is suffering from an extremely serious physical disability. Indeed, proficient archers have been known to shoot effectively even while using crutches to support them. Archery has been prescribed by many physicans for patients in need of a mild yet stimulating pastime. The prescription, a target and a bow and arrow, is a good one for physicians themselves.

BUSINESS PRACTICE

The following material is based on a public relations manual issued by the Public Relations Department of the American Medical Association.—ED.

PROBLEM PATIENTS

Peopling physicians' nightmares are problem patients, all of whom must be dealt with patiently. There is, for example, the gabby patient who would talk on forever if allowed to. The doctor's receptionist, after a casual comment about the weather, can usually spot such patients. She can then check the patient's card with a symbol to alert the doctor. When the assistant takes a talkative patient into the physician's office, she should pointedly remind him that the next patient will arrive promptly on schedule. In interviews with such a patient the physician must phrase his questions with care, since the more general his question, the longer the answer. He need not hesitate to interrupt firmly if necessary—the talkative patient is used to being interrupted by others and is not likely to take offense at a diplomatic break-in. If it seems impossible to shut off the patient after a reasonable length of time, the doctor may summon his receptionist by means of a concealed buzzer. By prearranged agreement, she enters with a "message," saying, "Doctor, I'm afraid you've run over-time. Your next patient has arrived." She never chides the patient. One physician says he suggests that such patients come back for another appointment to discuss their condition. Most patients do not want to pay for another visit just to talk.

The "shopper" who changes from one physician to another is also a trying type of patient. Sometimes this patient conceals symptoms in an attempt to get a contradictory diagnosis. Shoppers should firmly be urged to return to their own doctors, unless they insist that they no longer retain a personal physician. To avoid difficulties, get complete case histories and never talk disparagingly about other physicians.

The belligerent patient who boasts that he disregards the doctor's orders is fairly common. The physician must convince such a patient that his orders have merit and are to the patient's best interest. Sometimes it is necessary to state firmly, "I will no longer be responsible for your condition if you don't follow my orders."

Children may prove difficult. Some are troublesome only because they are frightened. The physician then should be as gentle and reassuring as possible. With the obstreperous child who will not swallow the bait of "Let's see how brave you can be," some doctors inquire what the child plans to do after he leaves the doctor's office and then say, "Well, there isn't going to be time for that movie (or baseball game) if you don't get this over with." This method usually produces results. When a child persists in being difficult, the physician can consult with the mother to learn whether she wishes him to proceed. On the other hand, he may ask her to wait outside; the sympathetic mother's presence may only serve to bolster the child's belligerence. Most physicians find that children do not complain half as much as expected when they find that the procedure is to be done despite their opposition.

When a patient has a grievance, the doctor must listen patiently even though the complaint seems ridiculous or unjustified. He must try to explain misunderstandings if possible. If the patient still cannot be appeased, the physician should suggest that the patient put his complaint in writing and submit it to the mediation committee of the local medical society for hearing. Such committees serve to convince patients that physicians are trying to settle complaints justly.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Association of Polyuria and Albuminuria with Hypertension of Unilateral Renal Origin. Q. B. Deming. A. M. A. Arch. Int. Med. **93**:197-204 (Feb.) 1954.

Deming presents the case of a young woman with hypertension that was relieved by removal of an atrophic kidney distal to a diseased renal artery. Her initial symptoms were not those of hypertension but those of polyuria and polydipsia. She also showed albuminuria, edema, and weight loss. The author reviews the literature on experimental renal hypertension and comments on the relationship between the induction of these symptoms and the induction of hypertension. A few case reports of hypertension cured by nephrectomy are reviewed to show that these renal effects are not uncommonly seen in human beings. When the full symptom complex is present, as it was in this patient, it offers support to the belief that the hypertension is of renal origin. The involved kidney in this patient was not infected, and there was no surgical need to remove it other than that of controlling the malignant hypertension. Among the criteria for consideration of nephrectomy are the factors that the renal lesions should be confined to one kidney and that the combined renal function (urine concentration) should be normal. It is possible, however, to have the normal kidney respond in such a manner that its function is demonstrably abnormal. A normal kidney under the influence of the renin-angiotonin mechanism excretes an abnormal amount of protein. The demonstration that there is some protein in the ureteral urine from the normal side then need not contraindicate surgery.

Nasal Instillation and Inhalation of Crystalline Vitamin B_{12} in Pernicious Anemia. R. W. Monto and J. W. Rebuck. A. M. A. Arch. Int. Med. **93**:219-230 (Feb.) 1954.

This report contains the results of treatment of 12 patients with pernicious anemia in relapse by both inhalation and nasal instillation of crystalline vitamin B_{12}. Twenty patients with pernicious anemia in remission were treated by these techniques for varying periods up to 18 months. The patients with pernicious anemia in relapse, in addition to the usual clinical syndrome including neurological manifestations, presented the classic hematological features of macrocytic anemia and megaloblastic arrest of the bone marrow. Achlorhydria was demonstrated after histamine injection. The condition of the patients in remission had previously been adequately controlled by the injection of either refined liver extract or vitamin B_{12} at intervals of two to four weeks. Crystalline vitamin B_{12} in isotonic sodium chloride solution without a preservative was utilized for aerosol inhalation and nasal instillation. Maximum hemopoietic effect was elicited with a solution containing 100 mcg. per ml., although in these observations the concentrations employed varied from 15 to 200 mcg. per milliliter. One thousand micrograms of vitamin B_{12} and 0.1 ml. by volume of lactose powder was used for administration as a dust. Experience with inhalation technique demonstrated greater effectiveness if a forced expiration immediately preceded a slow, deep inspiration after which the breath was held for a few moments and then exhaled through the nose. Nasal instillation was performed in 0.5 ml. volume divided between the two nostrils and given in the usual manner of nasal liquid medicaments. Inhalation and nasal instillation of crystalline vitamin B_{12} in isotonic sodium chloride solution or lactose powder produced no evidence of toxicity or sensitivity at the local site. Satisfactory hematological and clinical results were obtained. Detectable amounts of a growth substance like vitamin B_{12} in the urine were found after pulmonary administration and nasal instillation of this substance. This simple form of therapy is not only effective, but safe and economical.

Ergotamine Tartrate and Caffeine (EC 112) in Migraine Headaches. M. Y. Swirsky. Connecticut M. J. **18**:121-123 (Feb.) 1954.

Because the oral or sublingual routes of drug administration have the disadvantage of increasing the tendency to retching and vomiting in patients with migraine, a rectal suppository seemed worthy of a therapeutic trial. EC 112, a preparation containing ergotamine tartrate and caffeine, was tried in 28 patients with migraine headache. Every one of these patients reported that they were subject to one or more phenomena prior to the development of the severe headache. These symptoms varied. Seven had visual symptoms, 5 had gastric upsets, 9 had various psychological upsets, 4 had vasomotor instability reactions, 18 were hypersensitive to noise, 15 were hypersensitive to light, 6 noted stiff neck, and 9 experienced frequency of urination. These persons were instructed to take medication at the first signs of an attack. One suppository was usually sufficient to control symptoms in an hour. This type of medication was effective in patients known to respond well to ergot by other methods of administration and should be used when oral or parenteral routes of therapy are either not tolerated or not feasible.

Multiple Myeloma: Report of 51 Cases: Some Observations with Urethane Therapy. R. D. Haines. J. Louisiana M. Soc. **106**:1-7 (Jan.) 1954.

The occurrence of multiple myeloma is reported in 38 men and 13 women between the ages of 41 and 76. Pain and weakness were the two most frequent symptoms. Other common complaints concerned gastrointestinal symptoms. Of the 51 patients, 2 had generalized purpura as the presenting symptom, and one had a generalized lymphadenopathy. Three patients had a sudden dramatic onset of back pain indistinguishable from that associated with acute herniated lumbar disk. A high erythrocyte sedimentation rate exceeding 80 mm. per hour was observed in 36 of 41 patients in whom it was determined. Of 43 patients in whom total serum protein was checked, 37 had hyperproteinemia exceeding 8 gm. per 100 cc. Twenty-four patients with hyperproteinemia had multiple skeletal lesions, demonstrated roentgenographically. Albuminuria was observed in 45 patients and anemia (less than 3,500,000 cells per cubic millimeter) in 35. Rouleau formation was seen in 23 patients, but total protein in excess of 8 gm. per 100 cc. was observed in only 17 of these patients. Myeloma cells in peripheral blood smears were seen in 22 patients (44%) and myeloid immature cells in 19 (37%). Only seven patients had a total white blood cell count exceeding 10,000 per cubic millimeter. The symptom complex of multiple myeloma may be very bizarre. No single test, not even bone marrow aspiration, is consistently diagnostic, but the results of other tests may be suggestive. Anemia is not always present, and roentgenograms will not always establish the diagnosis. Treatment must be individualized. During the past three years, 13 of the 51 patients were treated with urethane for varying periods. Detailed reports are presented of three of these patients who received urethane for a longer period than the average life expectancy for the group as a whole; two received 2 gm. of urethane daily for three and four years, respectively, and the third received 2.5 gm. daily for 18 months. Results showed a return to normal of the altered albumin-globulin ratio, diminution of hyperproteinemia, decrease in erythrocyte sedimentation rate, roentgenologic im-

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provement of a pathological fracture of the cervical spine, decrease in the myeloma cell population of the bone marrow, as well as suggestive cytological changes. Urethane is a drug that can be administered safely for long periods.

Hookworm in Alabama. T. S. Hosty, D. M. Wells, M. A. Freear and N. K. Whitfield. J. M. A. Alabama. **23:**179-182 (Jan.) 1954.

During the school year 1951-1952, a survey was made of school children in the 13 southernmost counties of Alabama. As in a previous survey made in 1934-1937, the Willis salt flotation method was used to determine the presence of hookworm. No ova counts were made due to lack of available personnel. The presence of other helminths was reported when discovered. Of 40,845 examinations, 7,335 were positive for one or more helminth infestations; 7,009 of these were positive for hookworm only, 116 for enterobius, 121 for ascaris, 8 for Hymenolepis nana, 13 for Trichuris trichiura, and 68 for some combination of these. The percentage positive for hookworm was over twice as great in rural areas, and somewhat less among Negroes than among whites. In the 16 years since 1937, the incidence of hookworm has been steadily decreasing; in the former survey the total percentage of infestation for the whole state was 15.3%, and for those 13 counties 37.0%, while in 1952 it was 17.1% for the 13 counties. Several factors have helped reduce the hookworm rate in Alabama. Extensive progress has been made in sanitation by increasing the number of sanitary privies and septic fields; more country schools have been consolidated, resulting in better sanitation and less likelihood of infection; and diagnosis and treatment have been continuously carried out, along with education. The authors feel that, although adequate sanitation constitutes the complete and permanent prevention of hookworm, it would be dangerous simply to wait for it to be installed. In the meantime, the disease could be eliminated within a few years by diagnosis and treatment within the heavily infected areas.

The Survival of Bacterium Tularense in Lice and Louse Feces. R. D. Price. Am. J. Trop. Med. **3:**179-186 (Jan.) 1954.

Results of the first phase of a study of the inter-relationship of the human body louse, Pediculus humanus var. corporis, and the tularemia organism, Bacterium tularense, are reported. An attempt was made to determine the longevity of B. tularense in lice killed immediately after infection, in infected lice allowed to starve to death, and in louse feces, each of the foregoing stored at various temperatures and relative humidities. Once the body louse became infected with B. tularense, the louse and its feces harbored the tularemia organism for varying periods ranging up to 53 days, depending on the environmental conditions. Temperature was the greatest single contributing factor to longevity of the organism in the louse or louse feces, with lower temperature causing greater survival. Humidity played a significant part in survival, especially at higher temperatures; the lower the humidity, the longer was survival. No statistically significant difference was noted concerning longevity of B. tularense and the louse substrate. Louse feces at low humidity gave remarkable survival.

Treatment of the Ambulatory Asthmatic Patient with Corticotropin Purified in Gelatin. L. N. Gay and G. W. Murgatroyd Jr. J. Michigan M. Soc. **53:**33-47 (Jan.) 1954.

A preparation of highly purified corticotropin in gelatin (Acthar-gel) was used in the treatment of 78 ambulatory patients with severe bronchial asthma and emphysema. Prior to treatment, x-ray studies of the sinuses and chest, electrocardiograms, and, when indicated, bronchograms were made to eliminate bronchiectasis. Throughout the period of treatment with corticotropin, blood pressure records, urinalysis, and blood studies with special reference to blood sugar, non-protein nitrogen, and eosinophil response to corticotropin were made repeatedly. Of the 78 patients, 7 were between the ages of 3 and 20 years (group 1), 16 between the ages of 20 and 40 (group 2), 29 between the ages of 40 and 60 (group 3), and 26 between the ages of 60 and 80 (group 4). All patients were treated once in 24 hours. On the first day, 60 to 100 units, depending on the severity of the symptoms, was injected in the glutei. On the second and third days, 60 to 80 units was administered. On the fourth and subsequent two or three days, 20 to 60 units was injected, depending entirely on the individual response to this schedule. Daily injections were given to most of the patients for from five to seven days. Not a single local reaction occurred at the site of approximately 2,000 injections of the repository form of corticotropin. Complete relief followed the treatment in 18 of the 23 patients in groups 1 and 2. Of the 29 patients in group 3, only one responded poorly to the hormone. Subsequently 15 of the 29 patients were given cortisone or hydrocortisone orally; they all are continuing in a remission. Results were excellent in 24 of the 26 patients in group 4 and poor in the remaining 2. The 24 patients progressed from chronic invalidism to comparatively comfortable health and well-being. Ten patients, now entirely free of discomfort, are receiving maintenance doses of 10 to 20 mg. of hydrocortisone twice daily. Seven are receiving daily, or three times weekly, or twice weekly, 40 to 80 units of the gel form administered on schedule just as one might administer insulin to the diabetic patient. Relapses occurred repeatedly in 17 patients; one 68-year-old patient who had repeated attacks of status asthmaticus required nine courses of the hormone (2,600 units) to secure complete freedom from symptoms. Despite numerous complications, hypertension, diabetes mellitus, coronary occlusion, chronic sinusitis, and pronounced emphysema in the patients of group 4, treatment was continued with cautious observation and effected relief and resulting well-being. The excellent results obtained with the repository preparation of corticotropin, the ease of administration, the economy for the chronically ill ambulatory patient warrant the opinion that this drug when used carefully is of great value in controlling the distressing symptoms of asthma. The results obtained suggest that the disease does not become resistant to the hormone after repeated administration. Sensitization has not been observed.

Aneurysm of Heart: Correlative Study of 102 Proved Cases. J. Schlichter, H. K. Hellerstein and L. N. Katz. Medicine **33:** 43-86 (Feb.) 1954.

Schlichter and associates feel that, although aneurysm of the ventricle is a frequent complication of myocardial infarction, its incidence, clinical recognition, and significance are not generally appreciated. In view of the recent trend toward early ambulation of patients with acute myocardial infarction, the authors decided to analyze the histories of 102 patients in whom ventricular aneurysm was demonstrated at necropsy. Ventricular aneurysm was found in 17.5 per 1,000 cases in which necropsy was done and in 20% of all cases with myocardial infarction. An increased load put on the left ventricle during the period of recent infarction was more important in the development of ventricular aneurysm than the presence of a large infarct or a through-and-through one. Early unwarranted ambulation, the existence of hypertension, and the presence of anatomic deformities such as significant valvular lesions or hypoplasia of the aorta are regarded as evidence of increased load. In this series 70% of the patients with aneurysm were shown to have had inadequate bed rest at the time of acute infarction. One of the outstanding sequelae of ventricular aneurysm is the more frequent occurrence of mural thrombi and the consequent greater incidence of thromboembolic phenomena. This analysis suggested that because of these two factors ventricular aneurysm carries with it a much poorer prognosis than myocardial infarction without aneurysm. While thromboembolism was more frequent in cases of ventricular aneurysm than in cases of infarction without aneurysm, nevertheless the commonest cause of death was congestive heart failure (in 70%) or recurrent myocardial infarction (in 53%), sometimes associated with severe shock or with a terminal arrhythmia. The authors make the following suggestions for treatment: 1. Early ambulation, especially in the presence of hypertension, valvular deformities, or severe illness suggestive of large, through-and-through infarction, should be avoided as a routine, and bed rest for at least four weeks, if not longer, should be mandatory. Exceptions to this rule can be made only after all the pros and cons have been carefully considered. 2. Anticoagulant therapy should be started as soon as the diagnosis of myocardial infarction has been made and should

be continued through the entire course of bed rest. 3. In the presence of a ventricular aneurysm, the early manifestations of congestive heart failure must be vigorously counteracted. The authors conclude that ventricular aneurysm is not to be dismissed lightly since it definitely carries with it a shortened life expectancy and a greater tendency to superimposed illnesses as compared with myocardial infarction without aneurysm.

Asphyxiation in Street Manholes. G. S. Michaelsen and W. E. Park. Pub. Health Rep. **69:**29-36 (Jan.) 1954.

The death of a plumbing company employee in a water main manhole in Minneapolis brought up the danger of suffocation in such manholes. The manhole where the death occurred is located on a city street in a low, swampy area. For approximately two weeks before the death, someone had entered the manhole twice a day to turn the water on and off. The deceased workman had done this himself without any mishap on the days immediately preceding the accident. On June 10, he went down to turn the water off. When he did not come up in the expected time, his partner called him, but there was no reply. The body was removed in about 20 minutes, and there was no response to oxygen and artificial respiration. The coroner's report attributed the cause of death to asphyxiation. This death, like two similar ones in another Minnesota town, seemed to have been due to oxygen depletion in manholes. Several days later, air samples were taken from the manhole, and mice were lowered into it. Other studies included checking of the barometric conditions, blowing with fresh air, the examination of soil samples, and displacing air with nitrogen. These experiments emphasized the dangerous conditions that might be found in manholes with respect to oxygen depletion and the necessity for caution and adequate ventilation before entering or working in such places. No manhole should be considered safe until it has in some way been demonstrated to contain sufficient oxygen or has by some mechanical means been blown out with fresh air. Changes in barometric pressure seem relatively minor factors in altering the oxygen content of air in manholes, but the presence of organic matter and other extraneous materials, which demand oxygen, is a factor of major importance. Manholes, particularly those in low or swampy areas, are potentially dangerous in respect to oxygen depletion. There may be substances in the subsoil other than vegetable matter that may increase the chemical oxygen demand. There is free and rapid diffusion of gases through the walls and floor of manholes. The flow of air through the manhole cover openings is not always sufficient for maintaining the air within the manhole in equilibrium with the outside air. The effect of factors such as change in seasons, frost, rainfall, traffic load, and variations in type of street surfaces might also bear investigation.

Finger Contracture Due to Tendon Lesions as Mode of Presentation of Rheumatoid Arthritis. B. M. Ansell and E. G. L. Bywaters. Ann. Rheum. Dis. **12:**283-289 (Dec.) 1953.

Contractures of fingers due to tendon lesions are common in many diseases and have been observed in from 42 to 48% of cases of rheumatoid arthritis. Tendon lesions in this disease are very important from the therapeutic point of view; if they are not treated they produce great limitation of finger extension and may become irreversible through secondary changes in other tissues. While it is not difficult to recognize these tendinous lesions in frank cases of rheumatoid arthritis, it is rather difficult to diagnose them correctly when arthritis is not present. The main change is the appearance in the mesotendon and peritenon of granulation tissue and fibrosis accompanied by necrosis (often fibrinoid) of the tendon fibers or of the granulation tissue. It is important to differentiate these lesions from scleroderma when the erythrocyte sedimentation rate is not increased and an increased differential agglutination titer is not present. In such cases the skin, although smooth from lack of use, is not thickened or adherent, telangiectases are not seen, and loss of pulp or bone in the terminal phalanx is not present. The treatment of early tendinous lesions of rheumatoid arthritis consists in mobilization of the fingers by active and passive movement after wax baths. Night splints are sometimes necessary to maintain good finger posture. In cases in which the lesions are of long standing, the tendons have to be freed surgically. The operation usually brings an improvement, but this may not be lasting. Flexion contractures of the fingers were the presenting signs of rheumatoid arthritis in three patients in whom joint lesions were either absent or asymptomatic and minimal. The contracture had occurred within two months and six weeks and sometimes later after the onset of pain and swelling to the hands, knees, and feet. Nodule formation was present in the subcutaneous tissue of two patients. The histological changes of the tendons were typical of rheumatoid arthritis. Wax baths and administration of corticotropin were valuable in two patients in whom the contractures were of recent onset. Surgery was needed in the third patient and was followed by a marked improvement in position and ability to use the hand. In a fourth patient in whom the joint lesions preceded the involvement of the tendon, the flexor tendon sheaths were incised and free movement of the tendons was obtained.

Collagen Disease Complicating Malignancy. J. Lansbury. Ann. Rheum. Dis. **12:**301-305 (Dec.) 1953.

In the last seven years Lansbury observed the coexistence of collagen disease (rheumatoid arthritis, dermatomyositis, and disseminated lupus erythematosus) and neoplastic disease (carcinoma of the esophagus, Krukenberg's tumor of the colon, carcinoma of the kidney, malignant seminoma of the testes, metastatic adenocarcinoma and bronchogenic carcinoma, and carcinoma of the lung) in six patients. The tumor preceded the onset of the collagen disease in all patients, although arthritis was the presenting symptom in four patients in whom a neoplasm was at first not suspected. Four patients had a history of allergic diathesis, but the significance of this factor, if any, could not be established. Although the mechanism of the relationship between neoplasms and collagen diseases is not known, it is believed that their coexistence, which has been reported many times in the literature, is not due to chance. It is not caused by a specific type of neoplasm but rather by some unknown factor common to all neoplastic diseases. Since invasion is a feature common to all neoplasms and since in many instances the collagen disease disappeared after the tumor was removed, this phenomenon may be caused by some factor which facilitates the invasion of malignant cells. According to the author, it could be related to some hyaluronidase-like substance secreted by malignant cells that, by entering the general circulation, may interfere with the hyaluronate components of connective tissues and their enzymes and coenzymes. When dermatomyositis, arthritis, or any other collagen disease occurs in older patients without a recognizable precipitating factor, studies should be made to detect a concealed neoplasm.

Congenital Aortic Stenosis: Clinical and Radiological Considerations on Six Cases. G. Magri and E. Zambelli. Minerva med. **44:**1745-1756 (Dec. 5) 1953. (In Italian.)

Recent reports suggest that congenital aortic stenosis is less common than was believed and that its uncommonness is more apparent than real, is due to diagnostic incompetence. The condition is more frequent in men than in women, and in many instances a heart anomaly is present early in life. On the basis of the clinical signs and the patient's history, congenital aortic stenosis cannot be ascribed to rheumatic disease. It has been attributed to an endocarditis in fetal life or to a germinal malformation. The clinical diagnosis is based mainly on auscultation and laboratory findings. The pathognomonic signs are a systolic murmur at the base of the heart, anacrotism of the central pulse, accentuation of the second border of the contour of the right heart, and dilatation and forceful pulsation of the aorta. The roentgenograms reveal a slight enlargement of the heart, but there is a prominence of the ascending aorta and hypertrophy of the left ventricle, and, in severe cases, calcifications of the aortic valves. The electrocardiograms show left axis deviation and signs of left ventricular hypertrophy and ectasia of the ascending aorta. The prognosis is favorable for mild cases. However, a definitive prognosis is difficult, for in adults the stenosis may suddenly progress with angina of effort, lipothymia, syncope, and sudden death. Subacute bacterial endocarditis may appear. The authors report on six patients, under 50, who had congenital aortic disease.

SURGERY

Results of Surgical Treatment of Permanent Arterial Hypertension in 117 Cases. R. Fontaine and V. Chardon. Strasbourg méd. 4:631-644 (Dec.) 1953. (In French.)

The blood pressure cannot be definitively restored to a normal level by any of the surgical procedures now used in treating permanent arterial hypertension. The benefits unquestionably derived from surgical treatment are apparently due to the stabilization of a formerly labile pressure, which reduces the danger of fatal complications, and to the improvement of the subjective symptoms and the objective signs. Surgical treatment may be said to transform hypertension that is poorly tolerated and in danger of becoming malignant into a mild, if not asymptomatic, benign hypertension. The blood pressure itself, after a temporary decline, usually shows a gradual increase until it finally becomes stabilized at a level that may be either above or below the previous one. Correct determination of the operative indications is essential if the maximum benefit is to be derived from surgical intervention. The results of operation are disappointing in patients with hypertension of the pure renal type (hypertensive nephritis) and in those with primary malignant hypertension with severe angiosclerosis, especially if they are young. No treatment is needed for stable hypertension that has been tolerated for years without concern by patients now in their 60's. The indication of choice is found in essential hypertension, which should be treated surgically as soon as the first signs of malignity appear. The exudative syndrome with retinal, papillary, or cerebral edema is an urgent and imperative indication requiring immediate intervention; the stenosing vascular syndrome, with inflammation of the coronary arteries, accompanied by disturbances of the cerebral and retinal vessels, should also be treated by surgical means unless very severe vascular disease is already present. Experience with 117 patients subjected to various procedures indicates that thoracolumbar splanchnicosympathectomy, either unilateral or bilateral, combined with total unilateral adrenalectomy is at present the procedure of choice in treating hypertension.

Problems of Free Transplantation of Vessels: Methods of Preservation for Storage of Vascular Grafts. K. Kremer. Zentralbl. Chir. 78:1857-1867 (No. 44) 1953. (In German.)

From a review of world literature on methods of preservation of vascular grafts, Kremer reaches the conclusion that the technique of quick freezing to –78 C in a nutrient solution as medium and storage of the grafts at this temperature seems to be the method by which the most favorable results may be obtained. Other methods should be used only in emergency cases. This concept also takes into consideration the results of the author's own experiments with grafts from the thoracic and abdominal aorta in 30 dogs.

Methods for an "Ideal Cholecystectomy" as Envisaged by von Haberer: Total, Subserous Enucleation (Pribram) and Electrosurgical Technique (Pribram, Thorek). V. Orator. Zentralbl. Chir. 78:2017-2025 (No. 48) 1953. (In German.)

Of 206 surgical interventions on the gallbladder performed in the last three years at the general hospital in Wiener-Neustadt, Austria, 149 consisted of a total subserous enucleation with the scalpel according to Pribram's technique. Except for one postoperative death resulting from embolism (despite early ambulation), excellent results were obtained. Hospitalization was reduced to 9 days as compared with 19 to 28 days for the standard operation. Total, subserous enucleation of the gallbladder is recommended as a regular procedure. This method can be practiced in the presence of acute empyema (except for chronically contracted gallbladder), acute hydrops, and occlusion by calculi. After freeing the gallbladder from existing adhesions and packing the abdominal cavity, the infundibulum must be freed, the cystic duct secured, and double ligation performed. Preservation of the serous membrane of the gallbladder facilitates the tight tamponade of the cystic stump and of the wound bed of the liver by single knot Lembert sutures. Primary closure of the abdominal wall without drainage, i. e., the "ideal cholecystectomy" as envisaged by von Haberer, is possible as a rule, even in patients operated on in the course of an attack. In cases in which total, subserous enucleation of the gallbladder appears technically not feasible, electrosurgical obliteration of the gallbladder (mucoclasis) according to Pribram (with Paquelin's burner or by electrocoagulation), McNeil Love's diathermy dissection, or Thorek's electrosurgical obliteration of the gallbladder (cholecystelectrocoagulectomy) is indicated.

NEUROLOGY & PSYCHIATRY

Effects of Corticotropin (ACTH) on Mental Function. S. Malitz, D. A. Hamburg and S. Modell. J. Nerv. & Ment. Dis. 118: 315-331 (Oct.) 1953.

Malitz and associates attempted to determine if corticotropin (ACTH) produces striking, specific changes in mood and behavior, as reported by some observers. Special attention was directed toward controlling several factors that have complicated evaluation of previous studies. Among these variables are (1) the presence of severe or chronic illness, (2) the patient's previous personality patterns, (3) current environmental stress, and (4) attitudes of the investigators. A group of 11 young soldiers, only mildly ill with acute hepatitis, was chosen for investigation and subdivided into control and treatment groups. The pattern of distribution was kept secret from all observers. Periodic psychiatric observations were made before, during, and after the administration of the drug (or placebo). Psychiatric observations revealed no gross intellectual, affective, or behavioral changes; controls could not be differentiated from patients receiving the drug. Psychological tests were administered before and repeated during the administration. The results did not demonstrate any sharp distinctions between the two groups, either before or after the initiation of treatment. Fluctuations observed were minor in nature and occurred with equal frequency in the two groups. It is concluded that major psychological changes need not invariably occur with the use of corticotropin. Changes are probably rare in patients who do not have chronic, severe physical or mental illness. Although this is a small sample, the uniform lack of major psychological changes suggests that the pharmacological action of corticotropin on the central nervous system (as shown by electroencephalographic evidence) has no specific effect on mood and behavior when administered in the usual clinical dosages. The variables, which this study attempted to minimize, are probably among the chief factors responsible for the production of mental changes.

Screening Test for Excessive Urinary Copper. C. J. Earl. Lancet 1:234-235 (Jan. 30) 1954.

Earl directs attention to the disordered copper metabolism in hepatolenticular degeneration (Wilson's disease) and its modification by treatment with dimercaprol (BAL) and chelating agents. The early stages of the more chronic types of Wilson's disease, which offer the most satisfactory response to the mobilization of body copper, may exhibit only tremors and mild dystonia. Usually the presence of Kayser-Fleischer rings is an unequivocal diagnostic criterion. Nevertheless there are cases of mild dystonia, particularly in young children, where estimation of copper is desirable as a diagnostic test. Since the method devised by Eden and Green for the determination of copper in urine requires techniques and time not always available, it appeared that a more simple procedure, though less exact, might be of value as a diagnostic screening test in suspected cases, especially in view of the greatly increased amounts found in Wilson's disease. Specimens of urine from patients with Wilson's disease contain amounts of copper varying from 20.3 to 59 mcg. per 100 ml. (by the method of Eden and Green). Normal urine by the same method has been found to contain 1.48 to 4.9 mcg. per 100 ml. The screening test described in this paper is based on the reaction between copper and sodium diethyl-dithio-carbamate followed by amyl alcohol extraction as in the classical method; but evaporation and ashing are dispensed with. Amyl alcohol, however, will extract some urinary pigments; the extract from an unashed sample of urine is dark, and the detection of color differences due to the copper dithio-carbamate complex is difficult. A preliminary extraction was, therefore, done before the dithio-carbamate reagent had been added. Dithio-carbamate was added to the

extracted urine and the copper complex reextracted with amyl alcohol. Earl suggests that this method may be of value when fuller facilities are not available; it may be useful, too, even when there are such facilities, since a negative result with this method is highly significant if colorimetry is used to check the color difference and a standard is set up. In such circumstances it will enable the laboratory to pick out urines on which a full copper estimation will be worth while.

GYNECOLOGY & OBSTETRICS

Some Lessons from 4,000 Utero-Tubal Insufflations. A. Sharman. Brit. M. J. **1**:239-242 (Jan. 30) 1954.

At the Royal Samaritan Hospital for Women, Glasgow, tubal insufflation has been employed for nearly 25 years on over 6,500 occasions. Sharman's personal share of this experience amounts to just over 4,000 insufflations. There has been no embolism and no fatality. Infection resulted in only five of the cases. The author shows that uterotubal insufflation with air (or oxygen) involves the danger of air embolism; he verified this in animal experiments. With carbon dioxide, however, the risks are trivial. The author feels that the fact that carbon dioxide is the best gas for tubal insufflation is the first lesson he learned about tubal insufflation. The second lesson concerns the criteria of tubal blockage on the basis of insufflation. It was accepted for years that tubal blockage existed when gas failed to pass at a pressure of 200 mm. Hg (the usual upper limit). Sharman often found that gas passed between the 200 and 250 mm. Hg limits, and he has observed no ill effects or sequelae since adopting as a routine the pressure of 250 mm. Hg as the upper limit. In 102 patients in whom the tubes were not permeable to gas on insufflation under anesthesia and in whom dilatation of the cervix and endometrial biopsy were performed, repetition of the test a few days later without anesthesia showed normal patency in 70 (69%). This would seem to indicate that only 31% of the women showing nonpatency on a single test actually have occluded tubes. The third lesson learned concerns the therapeutic possibilities of insufflation. Of 902 patients with primary sterility traced for 12 months, 30% became pregnant. In a group of 253 patients in whom a uterine sound was passed, only 17.7% became pregnant within 12 months. The fourth lesson concerns the value of the addition of a kymograph to the insufflation apparatus. It helps to distinguish not only between patent and nonpatent tubes but also between tubes that are normally patent and those that are the site of spasm, stenosis, or peritubal adhesions. It is more accurate than the older types of insufflation apparatus, it gives a permanent record of the tests and their results, and it enables the results of tests on different dates to be compared.

Placental Metastases from Bronchial Carcinoma. J. S. Barr. J. Obst. & Gynaec. Brit. Emp. **60**:895-897 (Dec.) 1953.

Varying types of malignant growths in the mother have been known to produce placental metastases. After demonstrating this on the basis of reports in the literature, Barr suggests that the case presented here was apparently the first in which the primary tumor was a bronchial carcinoma. The patient was a woman, aged 39, who, when admitted to the antenatal clinic in November, 1949, complained of cough and breathlessness. For some years she had had chronic bronchitis, and the present pregnancy, her seventh, had aggravated her symptoms. The date of her last menstrual period was June 8, 1949. Radiological studies confirmed a tentative diagnosis of pulmonary neoplasm. The woman's health gradually declined until Jan. 2, 1950, when slight vaginal bleeding occurred. This recurred at intervals for the next two weeks, after which labor commenced. This was short and terminated in the spontaneous delivery of a live 4 lb. (1,814.37 gm.) baby girl. The placenta was expelled spontaneously, and the greater part of it appeared normal. The woman survived the delivery and lived for a further three months. A postmortem examination revealed a large bronchial tumor infiltrating the right upper lobe of the lung and the corresponding bronchus. The tumor extended down the bronchial tree to involve the right middle and lower lobes. The pericardium was involved by direct spread. Metastases were found in the liver, pancreas, left suprarenal, left kidney, and fourth lumbar vertebra. The left ovary was replaced by a tumor mass, and a small tumor nodule was present in the other ovary. The primary growth showed the general architecture and cell structure of a typical "oat cell" carcinoma. In the placenta, examination of numerous sections eventually diclosed a few small groups of abnormal cells in the maternal blood spaces. These were morphologically of the same type as found in the primary tumor. In this case, despite extensive spread of the tumor in the mother's tissues, the child escaped unharmed, and it seems probable that this is the rule rather than the exception when pregnancy is complicated by maternal carcinoma.

The Problem of Mammary Carcinoma. N. C. Delarue. Canad. M. A. J. **70**:132-141 (Feb.) 1954.

Delarue shows that the challenge presented by mammary carcinoma has been brought emphatically to the attention of physicians as a result of statistical evaluations claiming to demonstrate the failure of therapy to influence survival and the unimportance of early diagnosis in so far as it may influence the end-results obtained by treatment. Clinical observations tend to invalidate these statistical evaluations. Factors responsible for the poor results of radical mastectomy alone in dealing with this disease are discussed and the various attempts to improve the outlook are summarized. The importance of age and particularly the relation of onset to the menopause is stressed and the value of oophorectomy considered. The present plan of treatment in mammary carcinoma is briefly outlined with regard to the different stages of the carcinoma. On the basis of reported results, the author feels that in locally advanced mammary carcinoma preoperative irradiation deserves more consideration.

PEDIATRICS

Toxoplasmosis and Malformations. H. Andreas. Zentralbl. Gynäk. **75**:1700-1709 (No. 43) 1953. (In German.)

Of 1,720 deliveries at the gynecologic clinic of Erfurt, Germany, between August, 1951, and December, 1952, 21 infants presented congenital malformations such as hydrocephalus, anencephalia, spina bifida, abdominal fissure, and epispadias. Sabin-Feldman's dye test was performed on 20 mothers and 7 infants. The test was positive in four mothers; the seven infants had negative results. The pathogenic agent could not be demonstrated in any of the four women. Examinations of the fundus oculi, or other clinical, pathological, or laboratory examinations could not be performed, since the results of the Sabin-Feldman dye tests reached the author at the gynecologic clinic after the women had been discharged. One of the four women became pregnant one year after the delivery of an infant with spina bifida and hydrocephalus. Results of a repeated Sabin-Feldman dye test then were negative. The woman had not received any specific treatment, and observations by other workers that the antibodies may disappear from the serum even without treatment were thus confirmed. The pregnancy resulted in the delivery of a healthy infant without any malformation. Another of the four women with positive results from the Sabin-Feldman dye test had had two previous normal deliveries, but both children, a boy now 4 years old and a girl now 5 months old, were mentally deficient. Because of titer values of 1:50 + and 1:100 + during her third pregnancy, it was decided to interrupt the pregnancy, but a spontaneous abortion occurred between the fifth and sixth months. Although there is as yet no specific treatment available for toxoplasmosis, the study of every case of congenital malformation is important. In the presence of a known infection, the concept of the heredity of malformations can be refuted and many mothers may be freed from the anxiety caused by the assumption of an unavoidable fate. Close cooperation of pediatricians, ophthalmologists, obstetricians, internists, roentgenologists, hygienists, and pathologists is indispensable for the study of the clinical aspect and the mode of transmission of toxoplasmosis in order to achieve improvements in early diagnosis and to work out methods of adequate treatment.

Intraperitoneal Transfusions as a Method of Re-Hydration in the African Child. F. S. Carter. East African M. J. **30**:499-505 (Dec.) 1953.

Carter says that the advanced state of dehydration, because of which many African infants are hospitalized, presents a difficult problem because of shortage of adequately trained personnel to supervise intravenous drip transfusions or subcutaneous administration of fluid. Intraperitoneal transfusions were started because of accidents (death from pulmonary edema) resulting from too quickly run intravenous drip by inexperienced nurses. The first patient to whom an intraperitoneal transfusion was given was admitted moribund and not expected to survive whatever therapy was instituted. The very favorable results obtained in this infant induced the author to make greater use of intraperitoneal transfusions. He describes his observations in 155 intraperitoneal transfusions involving 96 children. The transfusions were made with a standard set and with a medium-sized needle. Half-strength isotonic sodium chloride solution with 2.5% dextrose was used for transfusion. The solution is heated to blood temperature in a water bath. The abdomen is prepared as for a surgical procedure and the area (about one inch above the umbilicus) is infiltrated with local anesthetic. In dehydrated infants the abdominal wall tends to be very relaxed, and, by inserting the thumb into the umbilicus, the lower part of the abdominal wall can be picked up between the thumb and the index finger. By exerting traction with the hand grasping the abdominal wall the needle can be pushed slowly through the skin without fear of passing too abruptly into the abdominal cavity. The fluid is allowed to run in as quickly as possible and a pint of fluid can usually be given within 5 or 10 minutes. During this period the child's movements can be controlled by one assistant. At the conclusion of the transfusion, the needle is withdrawn and the site of puncture sealed with collodion. The rate of absorption varied considerably among the 96 patients, but in only 6 was the absorption considered poor. At the outset, only children whose death appeared practically inevitable were treated with intraperitoneal transfusion. Postmortem examinations on 20 children, with one exception, showed the peritoneum to be healthy with no evidence of trauma to the bowel. It was encouraging to find no pulmonary edema in cases in which the cardiorespiratory systems were already embarrassed. The intraperitoneal method is not superior to the intravenous route when adequate supervision of the latter is available, but it might be of value in areas of East Africa where there is a shortage of trained personnel.

Studies on Neonatal Mortality. P. Rohmer, R. Sacrez, Mrs. Heumann and others. Arch. franç. pédiat. **11**:1-46 (No. 1) 1954. (In French.)

The first part of this work is devoted to a detailed review of the literature relating to death during the period beginning at birth and extending up to the 30th day of life. In the second part of the paper, the authors present 88 cases of their own; 76 of the babies died within the 30 day period at the Infant Clinic of Strasbourg, France. Twelve who died after the first month were included as controls. Of the 76 infants, 51 were premature and 20 born at term; the weights of the other 5 are unknown. The series is not large enough to be of statistical import, but from the clinical, histological, and bacteriological viewpoint, it is quite detailed; 50 aseptic autopsies were performed shortly after death. The authors found prematurity an extremely important factor in neonatal death, but it is a predisposing one to other pathogenic influences; in only one case could death be attributed to immaturity alone. A genetic factor was pointed out in two cases and malformations incompatible with life in two others. The great majority of deaths, however, were caused by anoxia with intracranial hemorrhage or by infection. Twenty-three out of 26 of the deaths occurring on the first day and 3 out of the 13 occurring on the second day were due to meningoventricular hemorrhage associated with anoxia, while the remaining 3 and 10 in the two groups, respectively, were due to infection. As of the third day, all 32 deaths were caused by infections, principally situated in the lungs. Some of the deaths were caused by bronchopneumonia originating in the bronchi, one followed aspiration of milk, some were hematogenous in origin, and others were of unknown origin. Several general infections were found of umbilical origin, of which one was peritonitis and one purulent meningitis. There were toxic infectious lesions in the liver and the adrenal cortex in numerous cases. A large variety of germs was isolated, particularly saprophytes. The saprophytic flora was presumably responsible for the infectious state and death of the babies. In the opinion of the authors, several problems remain unsolved, such as (1) the interaction of anoxia and cerebral trauma, (2) the mode of infection responsible for neonatal deaths by infection (does it occur before the onset of labor, by means of aspiration of amniotic fluid or vaginal mucus during expulsion, or by contamination after birth?), (3) how a common bacterial flora, which is normally considered harmless, develops a pathogenic action, and (4) how to achieve prophylaxis and early therapy of these infections.

DERMATOLOGY

Use of Oral Procaine in Control of Pruritus. L. G. Beinhauer. A. M. A. Arch. Dermat. & Syph. **69**:188-194 (Feb.) 1954.

One hundred forty-five patients with 23 pruritic dermatoses were treated orally with procaine hydrochloride and ascorbic acid for the relief of pruritus. Reactions occurred in 12 patients (8.2%) and were minor, consisting of headache, dizziness, nausea, drowsiness, and vomiting. These were readily controlled by withdrawal of the drug and did not recur on readministration. In patients in whom response was favorable, relief was obtained within four days after treatment was begun. No evidence of adverse systemic effects was noted when the drug was given over long periods of time. Therapy with procaine given orally gave complete relief in 22.2% of the patients, gave temporary relief in 27.9%, and failed in 49.9%. Oral medication with procaine hydrochloride and ascorbic acid gave most effective response in the treatment of urticaria (penicillin), herpes zoster, and burning tongue. In general, the effectiveness of orally administered procaine for the control of pruritus did not exceed that of other recognized therapies prescribed for the same purpose in similar dermatoses. Procaine can be administered orally with safety and warrants a trial when other therapy fails. The author's results did not rate in merit with the enthusiastic results reported previously by other clinicians.

Histogenesis and Clinicopathological Correlation of Nevi and Malignant Melanomas: Current Status. A. C. Allen and S. Spitz. A. M. A. Arch. Dermat. & Syph. **69**:150-171 (Feb.) 1954.

The question of the neurogenic or epithelial origin of nevi and melanocarcinomas is reviewed, the authors being of the opinion that the theory of epithelial origin is correct. They point out that the pigmented cells of the epidermis are merely altered epidermal cells of the basal and overlying layers, as witness the epidermis of dark-skinned persons or the epidermis made dark by ultraviolet or other forms of irradiation. They also stress that the inherent capacity of each epidermal cell to become a melanoblast is a direct link in the evidence of its participation in the formation of junctional, compound, and intradermal nevi as well as melanocarcinomas. This kind of evidence seems not to have been fully considered in the evaluation of the neurogenic concept. It also appears that much of the evidence for the neurogenesis of epidermal melanoblasts, nevi, and melanocarcinomas is based on questionable inferences drawn chiefly from (1) the insupportable neural connotation given to the "dendrites" of epidermal melanoblasts as well as to their argyrophilia, which is dependent on the presence of melanin rather than on an intrinsic affinity of the type possessed by dendrites of neurons; (2) the evidence, notwithstanding the patent gaps, that epidermal melanoblasts are nerve endings, and (3) the untenable hypothesis that cells migrate from the neural crest to become incorporated into the epidermis or mucosa as the only source of melanoblasts. It is not, however, implied that neural crest cells, their derivatives, or their humoral products may not influence and control pigmentation in lower animals or in man. A clinicopathological study of 937 cases of malignant melanomas reveals the follow-

ing facts. 1. Fatal or metastasizing melanocarcinomas are documentable, but rare, occurrences in children, and the histology of such melanocarcinomas appears fairly distinctive from juvenile melanomas. 2. Juvenile melanomas, quite benign, are occasionally observed in adults in whom they may be mistaken for the malignant lesions. 3. Superficial melanocarcinomas are associated with a better prognosis, as a group, than are the deep melanocarcinomas. 4. Patients with melanocarcinomas have a diathesis for the creation and activation of junctional nevi, so that it is not surprising that a significant percentage (3.6%) of patients had multiple primary malignant melanomas. 5. Epithelial hyperplasia, usually of the pseudoepitheliomatous variety, is an intrinsic part of the evolution of melanocarcinomas. 6. The prognosis in women with melanocarcinomas is appreciably better than in men, especially with lesions of the skin of the head and neck region. 7. Melanocarcinomas of mucous membranes of the head and neck and anogenital regions bear a uniformly grave prognosis. 8. Local recurrences or metastasis to regional lymph nodes obviously aggravate the prognosis but do not preclude survival. Moreover, five year survival is by no means tantamount to cure.

Ringworm of Hands Due to Trichophyton Rubrum: Diagnosis and Treatment. R. C. Thompson. South. M. J. **47:**130-133 (Feb.) 1954.

Thompson reviews observations on 39 patients with ringworm of the skin of the hands and fingernails caused by Trichophyton rubrum. These persons were seen between Jan. 1, 1951, and June 30, 1953. Males predominated about 5 to 1. The youngest patient was 4 years old; the oldest was 59. However the great majority were from 20 to 40 years old when first seen. The duration of infection varied from a few months to more than 20 years and averaged about 7 years. Palmar infections predominated and were unilateral in 30 of the 39 cases. The nail changes are easily confused with those of psoriasis, onycholysis due to alkali, mechanical trauma, and eczema of the dorsal digital skin. The symptoms and objective findings were always much worse during the hot weather. Nearly all patients complained of pruritus of the hands plus a mechanical stiffness and dryness. The results of therapy were disappointing, although most patients were cooperative and diligent in carrying out the prescribed treatment. Seventeen patients used a routine consisting of the inunction of 3% thymol, salicylic acid, and benzoic acid in aquaphor at bedtime and sleeping with thin cotton gloves covering the hands. Infected nails were filed daily. Only 3 of these 17 are known to have negative cultures and clinically well hands. Twenty-two patients used the same routine except that 1,8-dihydroxyanthranol ointment was used starting with a concentration of 0.1% and increasing to 0.25 and even 0.5% as tolerance developed. Six of these patients are believed to be well.

Association of Lymphogranuloma Inguinale and Cancer. R. Rainey. Surgery **35:**221-235 (Feb.) 1954.

Rainey presents observations on 11 patients in whom lymphogranuloma inguinale apparently predisposed to neoplastic degeneration. The clinical history of one of these patients is described in detail, and information relevant to the remaining 10 cases, which were collected from the records at the Cook County Hospital of Chicago, is presented in a table. The 11 patients were found among 220 cases of lymphogranuloma inguinale, representing an incidence of 4.5%. In a survey of the literature, 95 cases were found in which lymphogranuloma inguinale and carcinoma were associated. A colostomy does not remove the hazard of anorectal neoplastic degeneration in patients with lymphogranuloma inguinale. Patients with less extensive anorectal disease may be treated with more conservative measures but must be followed closely. If the inflammatory process continues after proper drug therapy and a preliminary colostomy, then more radical surgery is indicated. In five cases a previously positive Frei test reverted to negative at the time carcinoma was discovered. Further investigation is urged, as it is conceivable that this observation might form the basis of a diagnostic aid in the detection of latent carcinoma in these patients. Evidence is presented supporting the hypothesis that lymphogranuloma inguinale may predispose to neoplastic degeneration.

UROLOGY

Evaluation of Needle Biopsy in Diagnosis of Prostatic Carcinoma. W. B. Spring and M. W. Alden. Canad. M. A. J. **70:** 179-185 (Feb.) 1954.

Although needle biopsy of the prostate has been referred to as a useful diagnostic aid by many urologists, the paucity of reports on this diagnostic method induced Spring and Alden to incorporate a needle biopsy of the prostate as part of the urologic investigation in approximately 100 patients over 50 years of age who were being studied for prostatic disease. Answers were sought to the following questions: 1. Would the needle biopsy provide tissue satisfactory for diagnosis? 2. Would carcinoma unsuspected on rectal examination be discovered by the biopsy? 3. Could an early carcinoma be biopsied with accuracy? 4. Of what value would the biopsy be in cases of late carcinoma? The biopsy was done either at the time of cystoscopy or as an independent procedure. Local anesthesia was used, but advantage was taken of a general or spinal anesthetic if these were to be given for some other diagnostic procedure. The patient is placed in the lithotomy position, the scrotum is elevated and anchored by means of a towel, and the perineum is painted with a skin antiseptic. The Silverman biopsy needle was used exclusively. A finger in the rectum serves as a guide for the introduction of both the local anesthetic and the biopsy needle. The tip of the finger rests against the area to be biopsied, and the sheath of the instrument can be felt skirting the rectum and entering the lesion. Tissue obtained is fixed in 10% formaldehyde (Formalin) and stained. A satisfactory biopsy provides two or three slivers of tissue, each piece averaging 1.5 cm. by 2 mm. It was found that a needle biopsy can obtain tissue adequate for the diagnosis of carcinoma of the prostate in all stages of development. With experience, the operator becomes proficient and can accurately biopsy lesions suspected of being malignant. The chief limitation to its usefulness is the fact that a negative biopsy does not rule out the existence of carcinoma.

Postoperative Blood Loss in Prostatectomy. A. E. Goldstein, M. R. Golden and H. E. Silberstein. J. Urol. **71:**63-67 (Jan.) 1954.

The ever-increasing variety of methods for the control of bleeding in prostatectomy attest to the importance of this problem. The great difference in postoperative hemorrhage following the various types of prostatectomy and the fact that there was no record of comparison of the extent of hemorrhage after the different methods of prostatectomy induced Goldstein and associates to study blood loss quantitatively in 55 consecutive unselected cases in which all types of open prostatic surgery and transurethral resection had been employed. The duration and volume of bleeding were greatest in one stage suprapubic prostatectomy, averaging 4.2 days and 513 cc. Next highest was second stage suprapubic prostatectomy with 2.7 days' duration and 276 cc. of blood lost. In simple perineal prostatectomy bleeding lasted 1.6 days with 153 cc. of blood lost. The radical perineal prostatectomy cases averaged 0.9 days and only 83 cc. of blood lost. Similarly, in retropubic prostatectomy, the duration of bleeding was 0.9 days and blood lost 72 cc.; but this series included only two retropubic prostatectomies. The patients in the transurethral resection group had only 0.9 days of postoperative bleeding and the smallest volume of blood loss was 42 cc.; however, no transurethral resection larger than 30 gm. was performed. No relation could be detected between weight of tissue resected and postoperative blood loss. The authors feel that the studies described can serve as a guide to the requirements of blood transfusions after prostatectomy.

Osteitis Pubis Treated with Cortisone. J. J. Nugent. J. Urol. **70:** 940-942 (Dec.) 1953.

The patient, a man aged 65, had undergone suprapubic prostatectomy for a benign hypertrophy and chronic prostatitis on March 19, 1951. The patient felt fine until the sixth week when he began to have pain in the pubic area. The onset was gradual, and the severity of the pain became steadily greater, until, when the patient presented himself on June 28, he was hardly able to walk. Pressure over the symphysis pubis caused severe pain.

After examinations had ruled out other disorders and proceeding on the principle that osteitis pubis is a low grade infection, the patient was given 300,000 units of penicillin and 1 gm. dihydrostreptomycin. He received 12 gm. of oxytetracycline (Terramycin) in the next 48 hours. He was given codeine and told to take as much as necessary to relieve his pain. Two or three times a week, the patient called to state that he was no better. On July 12, he was given 1/6 grain (11 mg.) morphine tablets and advised to use them freely. Since the syndrome had been present for a little over two months, it was hoped that it was about to run its course and that relief might occur spontaneously. However, the patient felt that his pain was getting worse, and, although he could ill afford it, it was decided to administer cortisone. During the first 24 hours, 50 mg. of cortisone was administered by mouth every 4 hours. After the second dose, the patient felt that he had been relieved of 80% of his discomfort. The dosage was reduced to 25 mg. every four hours, but at this dose he received almost no relief. After four weeks, however, he again continued with smaller doses of cortisone and was able to keep himself quite comfortable by the use of aspirin that seemed to give him more relief than codeine or morphine. During the month of September, 1951, the patient presented himself to a radiologist who administered eight x-ray treatments to the symphysis. He was not aware of any immediate change in his symptoms. He continued to take gradually decreasing doses of cortisone until the last week of November, 1951. Gradually, his pain diminished, and he was free from pain at and after the end of December, 1951. Cortisone did not apparently change the course of the disease. It did, however, give the patient considerable relief while it was being administered. These observations seemed to be about the same as those reported by Whitmore and co-workers who used corticotropin in three cases of osteitis pubis.

OTORHINOLARYNGOLOGY

Hydrocortisone in Treatment of Pollen Rhinitis and Bronchial Asthma. A. Robecchi and F. Cartesegna. Minerva med. **44:** 1801-1802 (Dec. 8) 1953. (In Italian.)

Hydrocortisone acetate in aerosol was used to treat six patients with pollen rhinitis and seven with bronchial asthma. For each treatment, 1 cc. of the hormone was combined with 2 cc. of isotonic sodium chloride solution. At the time of writing, the patients had received from one to four treatments only; therefore, a definitive evaluation of the value of this therapy is still premature. The treatments were always tolerated well, and there were never local or general side-effects. A moderate improvement was obtained in four patients with pollen rhinitis in whom the tickling sensation, nasal constriction, rhinorrhea, and sneezing were decreased; the improvement was pronounced in one patient, whereas the condition remained unchanged in the sixth patient. Better results were obtained in the patients with bronchial asthma. Only one patient was not benefited; all the others improved. The improvement, with marked decrease in intensity and number of attacks, lasted in some for hours, in some for days, and in two for eight and two months, respectively. Because of the limited experience, it is difficult for the authors to state whether these improvements are temporary or lasting, but they feel that this therapy should be extended to more patients so that its true value can be evaluated.

Vitamin A in Treatment of Tinnitus and Chronic Progressive Deafness: Results of Investigation. M. Atkinson. A. M. A. Arch. Otolaryng. **59:**192-197 (Feb.) 1954.

Atkinson noticed that, when favorable results were reported with vitamin A in tinnitus and chronic progressive deafness, some of the patients treated had also been given vitamin B complex intravenously. In other case reports nothing was mentioned about the simultaneous administration of vitamin B complex, but Atkinson feels that, if it was used routinely, the favorable effects might have been due to vitamin B, since it had been shown that tinnitus can often be lessened and even sometimes completely controlled by the exhibition in suitable dosage of certain fractions of the vitamin B complex and that occasionally hearing loss also can be improved. With this in mind, it seemed that information of value with regard to the efficacy of vitamin A could be obtained if it were administered to a group of patients with hearing loss and intractable tinnitus in whom these symptoms had persisted unchanged despite intensive vitamin B therapy. In 10 patients investigated, 5 with Ménière's syndrome in which the vertigo had been controlled and 5 with chronic progressive deafness of perceptive type with tinnitus, no change was observed either as regards tinnitus by the patient or as regards hearing by either the patient or audiometer tests, after vitamin A had been given parenterally and orally.

Mixed Tumors of Salivary Gland Origin Occurring in the Palate. J. F. Gavin. A. M. A. Arch. Otolaryng. **59:**204-220 (Feb.) 1954.

Mixed tumors of salivary gland origin are considered uncommon, and those of the palate are even rarer. However, in a period of four years, Gavin observed seven patients with such tumors. Biopsy is not entirely reliable, since the histopathology of the excised mass often differs from that observed in the biopsy specimen. Because these tumors are radioresistant, the only reliable treatment is total surgical removal by enucleation, if possible. The operation is facilitated by use of endotracheal anesthetic and the Davis mouth gag. Recurrence is common. Incision through the capsule of the tumor in obtaining a specimen may be a cause of recurrence. These tumors may metastasize. One case is presented that is suggestive of metastasis to the skull, but autopsy was not performed.

THERAPEUTICS

Lung Changes During Hexamethonium Therapy for Hypertension. I. Doniach, B. Morrison and R. E. Steiner. Brit. Heart. J. **16:**101-108 (Jan.) 1954.

An unexpected pulmonary type of dyspnea and associated roentgenographic changes in the lungs occurred in 3 of 54 patients with severe hypertension who were treated with hexamethonium bromide in doses of from 50 mg. to over 600 mg. three times daily for a prolonged period. The three patients were men between the ages of 39 and 50 years; two of them died and necropsies were performed. The third patient recovered. The clinical, roentgenologic, and pathological aspects of these pulmonary changes after 7, 9, and 12 months of treatment, respectively, are described. The lung lesion was an organized, fibrinous pulmonary edema. It was attributed to attacks of left heart failure probably modified by intermittent lowering of the blood pressure by hexamethonium. Treatment with this drug also prolonged life and, therefore, made possible the development of organization and carnification. The lung lesions were not considered to be directly attributable to the hexamethonium therapy and were not contraindications to its continuation. The three patients required large doses of hexamethonium, but others who were given as much or more of the drug for periods up to 27 months did not show any lung changes.

Thrombocytopenia Due to Hypersensitivity to Quinidine. P. Barkham and L. M. Tocantins. Blood **9:**134-143 (Feb.) 1954.

The development of a severe thrombocytopenia with hemorrhagic manifestations in a patient who had been taking quinidine afforded an opportunity to study the causal relationship of the drug to the platelet disturbance and perhaps to elucidate further the nature of the reaction. The patient was a woman, aged 53, who was hospitalized because of the presence of spontaneously appearing bruises and purple spots on her skin and the passage of bloody urine. For the previous five months she had taken, intermittently, tablets of quinidine prescribed for a "jumping heart." In addition to the quinidine she had been taking Premarin, which contains conjugated estrogenic substances. Since it was thought that the thrombocytopenia was most likely a result of the drugs that the patient had been taking, probably quinidine, no specific therapy was instituted. The platelet count gradually returned to normal, concomitant with a gradual disappearance of the hemorrhagic signs. Experiments were then carried out to confirm the diagnosis and study the mechanism

of quinidine-induced thrombocytopenia. Quinidine caused lysis of the patient's platelets in vitro within 40 minutes and complete inhibition of clot retraction. Platelet lysis preceded platelet agglutination. Increasing the concentration of the sodium citrate used as anticoagulant inhibited the in vitro action of the quinidine. No thrombocytolytic effect of the patient's serum with quinidine could be shown when tested against normal blood. A test dose of quinidine administered orally after the patient had recovered from the thrombocytopenia produced a profound decrease in the number of platelets within 90 minutes; this was associated with a prolongation of the bleeding time and disappearance of clot retraction. The in vitro hypersensitivity to quinidine persisted for at least four weeks after recovery from the purpura; after six weeks it could no longer be demonstrated. Both the in vitro and the in vivo observations obtained in this study indicate that the fundamental effect of quinidine on the platelets was one resulting in the direct destruction of the platelets, with agglutination being of lesser prominence.

Carbomycin in Treatment of Enterococcal Urinary Tract Infections. H. M. Trafton and H. E. Lind. Antibiotics & Chemother. **4**:43-47 (Jan.) 1954.

Fifty-two patients with chronic genitourinary infections, with and without complicating urologic disease, were treated with carbomycin (Magnamycin). The majority of these had failed to respond to one or more other antibiotics—penicillin, streptomycin, chlortetracycline (Aureomycin), chloramphenicol (Chloromycetin), and oxytetracycline (Terramycin)—or sulfonamides. There were 38 men, some of whom also had nonspecific urethritis and prostatitis, and 14 women with chronic urinary tract infections. Of this group the majority were followed for six to nine months after initial therapy with cure or improvement. The remainder have been followed for a period of at least three months. Carbomycin was found to be generally effective against enterococci encountered in these infections, including those that were resistant to penicillin. In this series enterococci sensitive to carbomycin did not develop resistance. The drug was well tolerated in doses of 2 gm. or less per day. Diarrhea and anorexia were the two commonest complaints. At the therapeutic level of 2 gm. per day, diarrhea occurred in 50% of the patients and was sufficiently severe to modify or interrupt treatment in 15%. Anorexia occurred in 25% of the cases, while gassy indigestion and malaise occurred sporadically.

Studies on Cortisone and Antibiotics for Prompt Therapeutic Control of Typhoid Fever and Scrub Typhus. C. L. Wisseman Jr., P. Y. Paterson, J. E. Smadel and others. J. Clin. Invest. **33**:264-273 (Feb.) 1954.

Eighteen patients between the ages of 7 and 35 years with typhoid were treated between the 9th and 16th days of their disease with chloramphenicol combined with cortisone. Both drugs were given orally. Chloramphenicol was administered in two courses separated by an interval of seven days. The first course consisted of 3 gm. initially followed by maintenance doses of 1.5 gm. at 12 hour intervals until the patient had been afebrile for 48 hours. The second course consisted of 1.5 gm. every 12 hours for eight doses. Cortisone was administered according to several schedules; the average total dose varied from 10.7 mg. per kilogram of body weight for a single day to a total amount of 700 mg. administered over a period of four days. Of 16 young male patients with scrub typhus, 8 received a course of chloramphenicol consisting of an initial oral dose of 3 gm. followed by amounts of 1.5 gm. 12 and 24 hours later; the remaining 8 patients received the same course of chloramphenicol and in addition a total dose of 500 mg. of cortisone, given orally in amounts of 300 mg. and 200 mg. respectively, along with the first two doses of the antibiotic. The clinical manifestations of the febrile toxic state in typhoid and in scrub typhus disappeared in about six hours after institution of the combined therapeutic regimen. In both diseases defervescence was accompanied by a general sense of well-being and an improved appetite, which simplified maintenance of an adequate liquid and caloric intake during the acute phases of the diseases. Control of bacteremia was prompt in typhoid fever treated with the combined regimen and was comparable in all respects to cases treated with chloramphenicol alone. The incidence of relapse and of complications did not appear to be influenced by the inclusion of cortisone in the therapeutic regimen. The antipyretic effect of a single oral dose of cortisone was temporary, and fever recurred in typhoid patients unless administration of this hormone was continued. Experience with the different dosage schedules of cortisone in patients with typhoid who were receiving uniform antibiotic therapy indicated that, in order to avoid recrudescence of symptoms, administration of cortisone must be continued for a period of time that corresponds to that required for patients to become afebrile with a regimen consisting solely of chloramphenicol, i. e., about four days. Since the response of scrub typhus to antibiotic therapy is generally very prompt, the accelerated defervescence afforded by cortisone in this disease is primarily of theoretical interest. On the other hand, selected patients with severe typhoid may benefit by the administration of cortisone during the period normally required for the patient to become afebrile from the antibiotic therapy. The importance of adequate control of infection by simultaneous specific chemotherapy is emphasized in patients receiving cortisone. The mechanisms by which cortisone controls the toxic febrile state in these diseases remain unknown.

PATHOLOGY

Osseous Changes in Myopathy. J. N. Walton and C. K. Warrick. Brit. J. Radiol. **27**:1-15 (Jan.) 1954.

Walton and Warrick review the skeletal changes observed on radiographic examination in 38 cases of progressive muscular dystrophy (22 Duchenne type, 8 facioscapulohumeral, and 8 juvenile), 17 cases of dystrophia myotonica, and 6 of myotonia congenita. Patients with early muscular dystrophy showed narrowing of the shafts and rarefaction of the ends of long bones, impaired development of flat bones, and coxa valga. At a later stage of the disease, scoliosis, widespread decalcification with disorganization of cancellous structure, and loss of the lines of force were noted and sometimes progressed to gross distortion and disorganization of the skeletal system. The severity of the changes depended on the age at onset and the rate of progress of the disease. Similar appearances were noted in the wasted limbs of four patients who had suffered from poliomyelitis at an early age and in one who had dermatomyositis. It is concluded that the osseous changes in muscular dystrophy are not due to an associated genetic factor or to a "progressive osteomyopathy." They can be entirely related to disuse, to the absence of the stresses and strains imposed on the bones by muscular attachments in the normal individual, and to the development of abnormal postures of the body and the extremities as a result of muscular weakness and/or contractures. In the case of dystrophia myotonica, bone changes were confined to the skull. The dimensions of the sella turcica and the thickness of the skull vault in these cases were compared statistically with those in 60 normal control subjects of comparable age and sex. The sella turcica was found to be significantly smaller and the skull vault significantly thicker in the dystrophic persons. These changes became progressively more marked with age and increased duration of the disease.

RADIOLOGY

Blood Histamine Levels in Swine Following Total Body X-Radiation and Flash Burn. H. Baxter, J. A. Drummond, B. Rose and others. Ann. Surg. **139**:179-185 (Feb.) 1954.

The skin and other organs contain high concentrations of histamine. It is possible that histamine may be liberated from its "bound" state in cells due to the ionizing effects of radiation. Furthermore, there may be radiochemical formation of new histamine. Since it has been considered that histamine may play an important role in the acute radiation syndrome as well as in shock and thermal burns, it was decided to investigate the histamine content of blood in swine after total body radiation and after the combined injury of total body radiation plus a thermal burn. Twenty swine were divided into two groups of 10. One group received 400 r, and the other the same dose plus a 10 to 15% flash burn. Mortality in the first group was 20%,

while in the second group it rose to 90%. In the group of swine treated with roentgen radiation alone, the blood histamine content fell steadily from the preradiation level until the 13th day after radiation. The histamine then rose gradually in the survivors. When a flash burn was added to the same amount of radiation, a rise in blood histamine above preradiation values occurred on the second postradiation day. This was followed by a continuous decrease until the 13th day. Most of these swine died between the 11th and 18th days. In the one survivor, the histamine then rose gradually until almost the initial level had been attained. There appeared to be a definite parallelism between the fall in whole blood histamine content and increasing severity of symptoms of acute radiation illness. In all survivors, the blood histamine gradually rose toward normal. While the changes in blood histamine also were parallel in some respects to the decrease in the myeloid series of cells, which contain most of the blood histamine, this did not entirely account for the decrease in blood histamine. The authors point out that during the past few years a considerable amount of experimental and clinical investigation has been carried out on the assumption that increased or irregular production of histamine or histamine-like substances might be partly responsible for the general toxemia of radiation sickness. They advance several hypotheses to account for the changes in blood histamine following whole body roentgen radiation.

Skin Reaction to Protracted Beta Irradiation. H. D. Griffith, J. F. Philip and G. E. Swindell. Brit. J. Radiol. **27**:107-112 (Feb.) 1954.

This report is concerned with the response of skin to large measured amounts of ionizing radiation, particularly beta radiation, when the exposure is protracted over months and years. The records analyzed were made in the course of the extraction of radon and the preparation of radon sources for clinical use in the Aberdeen Radium Center over the 18 years from 1932 to 1950. The techniques used involved the filling of radon into glass capillary tubes by methods similar to those originated by Joly and widely employed at many radium laboratories. Certain areas of the skin of the fingers of operators employing those techniques receive considerable beta irradiation, and so steps were taken to keep the exposure within minimal limits. The circumstances in which the skin changes originated are described. Duration of exposure was up to four years. The earliest skin change common to all subjects was an increased rate of growth of the cuticle, accompanied by a tendency for it to grow upward along the nail margin. The nails in some persons became extremely hard and brittle and developed longitudinal ridging, although this was not, as a rule, an early feature of overexposure. Within the first months of exposure, a varying degree of erythema affected the skin overlying the nail beds, being most marked in those phalanges that were in closest proximity to the sources. Following a moderate degree of exposure such as was experienced by six subjects, both the cuticular hypertrophy and the erythema resolved with cessation of irradiation. If exposure were continued beyond this point, the erythema became more permanent and the normal skin markings became blurred and indistinct, resulting in a thin glazed atrophic epidermis with a tendency for minute keratoses to appear. Beyond a certain dosage level, moist dermatitis was precipitated with its subsequent telangiectasis. All changes observed were restricted to the skin over the dorsal aspect of the terminal phalanges of one or more fingers, with one exception in which case the thumb also was involved. Hyperesthesia and tingling of the affected fingertips was an additional feature reported by some workers. Superimposed on the individual variation in skin tolerance, it was clear that susceptibility to damage was greatly increased by simultaneous exposure to the action of other skin irritants and also that peripheral neurovascular disturbances accelerate the development of the skin lesions. Conversely, skin damage in exposure to beta radiation is later in developing, if the hands are well cared for. Hematological examinations revealed no significant blood changes. Late changes, persisting from 4 to 10 years after cessation of exposure and permanent in character, were observed in the fingers of persons subjected to heavy exposure. Such changes include permanent erythema, atrophy (characterized by the presence of a thin glazed skin), permanent telangiectasis, and perhaps keratoses. The lesions are evaluated in relation to some other cases reported in the literature and an assessment is made of the numerical factor by which exposure to beta radiation must exceed exposure to x-radiation for induction of similar skin changes.

Roentgen Ray Irradiation of Diencephalon as Treatment of Malignant Tumors. G. De Gaetani. Minerva med. **45**:57-58 (Jan. 13) 1954. (In Italian.)

Several observations have led De Gaetani to test the effectiveness of roentgen ray irradiation of the diencephalon in patients with malignant tumors. 1. Seldom, if ever, had he found cancer in psychopathic persons. 2. At autopsy of patients who died of leukemia, he always found hyperplasia and hyperfunction of the neuroglia and hypertrophy and abnormalities of the nervous cells. At autopsy of patients who died of malignant tumors, he always found hyperfunction of the nervous elements of the macroglia and microglia. 3. At autopsy of patients who died of medullar aplasia, he always found pictures that were the opposite of these. After long series of experiments with roentgen ray irradiation of the diencephalon of animals with neoplasms, he concluded that (1) the morphological and functional modifications that a neoplastic stimulus brings about in the organism are responsible for the onset of malignant tumors; (2) these changes involve at first the neuroendocrine constellation and the mesenchyma; (3) the anatomic and functional findings in the diencephalon of subjects with cancer and leukemia show hyperactivity of the diencephalon; and (4) irradiation of the diencephalon with roentgen rays influences the onset and course of cancer. He irradiated with roentgen rays the diencephalon of 20 patients who had malignant epithelial and mesenchymal cancer and in whom surgical and physical means had failed to bring relief. The treatment reduced the volume of the neoplasm that in some instances disappeared while in most instances necrosis and colliquation of the neoplasm was produced. All the local and general phenomena of the patients were attenuated so that administration of morphine and other analgesics could be almost interrupted. The patients' general condition was improved and the progression of the neoplastic cachexia was arrested. De Gaetani questions whether in view of these results cancer might be considered the local expression of a systemic disease.

PHYSIOLOGY

Effect of Diet on Urinary Excretion of Histamine. R. G. Mitchell and C. F. Code. J. Appl. Physiol. **6**:387-392 (Jan.) 1954.

Mitchell and Code studied the 24 hour output of free and conjugated histamine in the urine of five healthy adults while they ate a mixed diet for three days, then fasted for three days, then took bread and milk for two days, and finally ate a diet composed principally of meat for three days. In another series of observations on three adults, the output of free and conjugated histamine for 2 hour periods was studied after the ingestion of 60 mg. of histamine, after the ingestion of a meal of milk, bread and butter, and after the histamine and the meal were taken together. Fasting always reduced the daily excretion of both free and conjugated histamine. The free form fell to a basal and rather fixed output, which may be an index of total histamine metabolism independent of digestion. The taking of bread and milk did not alter the output of free histamine in the urine from the fasting or basal level. A diet of meat always increased it. The output of conjugated histamine in the urine was also increased by the ingestion of meat. In general, its output was subject to much more sweeping changes than occurred in the output of free histamine. No change occurred in the output of free histamine in the urine at two hour intervals when histamine was taken by mouth or when a meal of milk, bread and butter was eaten, but a large increase occurred when the two were taken together.

BOOK REVIEWS

Clinical Endocrinology. By Allan William Spence, M.A., M.D., F.R.C.P., Physician, St. Bartholomew's Hospital, London. Cloth. $12.50. Pp. 696, with 59 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

This book is intended for the use of the general physician and clinical endocrinologist, and emphasis has therefore been placed on the clinical features, diagnostic procedures, and treatment of endocrine disorders. After a short historical résumé, the author considers the physiological basis of hormonal functions and follows this by a clinical consideration of various endocrine diseases. There is also a section on the standardization of various endocrine products, which might well have been replaced in so brief a text by a more detailed description of the clinical aspects of endocrine disorders. In general, the text follows the classic approaches to this subject and shows no outstanding new features. It is clearly written in an easily readable style and well arranged.

The principal criticism to be leveled against this otherwise well-balanced text is its failure to include the most recent advances in the field. As examples, one finds the statements that the commonest cause of Cushing's syndrome is a basophil adenoma of the pituitary gland (page 51), that the negative nitrogen balance observed in Cushing's disease is seldom marked (page 62), and the Waterhouse-Friderichsen syndrome is due to adrenal failure (page 293). The "subcutaneous implantation" of cortisone pellets in the treatment of Addison's disease is advocated, and there is no mention of such recent advances as the use of cortisone in the treatment of congenital pseudohermaphroditism, of adrenalectomy in Cushing's disease, or of the occurrence of spontaneous remissions in this disorder.

The illustrations, which are for the most part original, are in general well chosen and of interest. The references appended to the text, on the other hand, show a paucity of the most recent work. The printing, typography, and style are excellent. Despite the deficiencies listed above, the book can be recommended to the general practitioner, although it is excelled by several available American texts on the same subject.

Medical Report on Atomic Bomb Effects. The Medical Section, The Special Committee for Investigation of Effects of Atomic Bomb, National Reseach Council of Japan. Cloth. $2.50. Pp. 118. Nankodo Company, Ltd., Haruki-cho, Bunkyo-ku, Tokyo, 1953.

The National Research Council of Japan organized a Special Committee for the Investigation of the Effects of the Atomic Bomb in September, 1945, a month after the historic experiences at Hiroshima and Nagasaki. The chairman of this special committee was the distinguished Dr. Haruo Hayashi, professor at the Tokyo Imperial University and president of the National Research Council of Japan. Cooperating with the committee were the Cabinet Information Bureau and the Home, Army, Navy, Education, Welfare, Agriculture and Forestry, and Communication ministries. Nine subcommittees dealing with specialized fields including physics, chemistry, biology, metallurgy, engineering, agriculture, architecture, and forestry were organized.

The present volume is made up of four sections, dealing with medical studies on the effect of the atomic bomb, radiation sickness and the clinical approach, evaluation of radioactivity, and pathological anatomy and histology of atomic bomb injury. Each section has been carefully presented by an outstanding authority. This is an important report. Here one finds carefully documented evidence of the effects of atomic blast. Much of the material has been studied by the American Commission for the Atomic Bomb Survey. The Japanese council had been previously organized; accordingly, two groups of investigators were in the field. In the early stages with the Japanese group, several sections were working rather independently. The creation of the special committee under Dr. Hayashi brought them into appropriate contact for more systematized recording.

This small volume gives the reader a first-hand impression of the atomic detonation in August, 1945, which opened a new era in science, health hazards, and social responsibilities. This volume is more exciting than fiction. Detailed descriptions abound of damages to the population, the city, and the nation. Immediate and delayed casualties are described. Protection against the atomic bomb and rescue problems are discussed, and the principles of medical care of injuries are outlined. This book should be widely and critically read by the medical profession and by the leaders of men in whose custody lies the future of civilized man.

Basic Pathology and Morbid Histology. By D. B. Cater, M.A., M.D., F.R.C.S., University Demonstrator in Pathology, University of Cambridge, Cambridge, England. Cloth. $8.50. Pp. 330, with 264 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; [John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8, England], 1953.

This textbook was written to assist first year students of pathology. The first part of the book deals with the bodily reaction to injury, with specific examples of the reaction in pyogenic diseases, tuberculosis, typhoid, and syphilis. The second part concerns diseases attributed by the author to a breakdown of physiological mechanisms, such as thrombosis, embolism, infarction, trauma, shock, degeneration, necrosis, atheroma, hypertension, renal disease, and heart failure. The third part discusses tumors, examples of several kinds of tumor in the organ systems, and present concepts of the cause of tumors. The author has illustrated the book with many diagrams and a large number of fine camera lucida drawings in color and black and white. The author has avoided complicated and cumbersome terminology. Though this book may be suitable for use in elementary courses of pathology in England, it would have to be used in conjunction with other textbooks of pathology in the United States, to supply an understanding of congenital abnormalities, nutritional diseases, metabolic diseases, parasitic infections, virus infections (other than experimental tumors), chemotherapeutic effects, antibiotic effects, and a host of other subjects with which a textbook of pathology has to deal nowadays.

Living Your Later Years. By Kenneth Walker. Cloth. $3.50. Pp. 196. Oxford University Press, 114 Fifth Ave., New York 11, 1954.

Successful living in the last quarter of the life span depends greatly on how the aging person lived during the first three quarters. It also depends on his understanding of the aging process and his willingness to adjust physically, emotionally, and socially to the changes that take place. The first portion of this volume goes into great detail on the recent researches and scientific opinions regarding aging, rejuvenation, the span of life, and the normal adjustments in physiology that occur as a person passes from maturity toward senility. The remainder of the volume concerns the treatment of old age, the physiology, the religious views, and the psychological changes that the aging person must develop in order to be emotionally stable, intellectually active, and physically capable of caring for himself.

The author is in a position to understand his subject, because he is in the period of life that he discusses and for some years has been associated with the care of older persons. In spite of the fact that his phraseology and the examples that he uses to make his points are British, much of what he says is universally applicable and would be as valuable to American as to British readers. This book should be very constructive leisure reading for the physician, because it will help him look on the elderly patient as more than a body that needs care. It is sufficiently light to be read by the average intelligent layman with profit, though a few might be disturbed by some of the studies reported and the attitudes expressed.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

Epilepsy and the Functional Anatomy of the Human Brain. By Wilder Penfield, O.M., C.M.G., M.G., and Herbert Jasper, M.D., C.M., B.A. Chapter XIV by Francis McNaughton, B.A., and M.D., C.M. Cloth. $16. Pp. 896, with 322 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6, 1954.

Understanding of how the brain functions, to the end that misfunction be corrected, is the most important, and the most neglected, of research adventures today. The present volume establishes a substantial beachhead on this *terra incognita*. The book is the combined effort of a neurosurgeon, a neurophysiologist, and a neurologist (and their associates) but is especially a crowning climax to the academic career of the senior author. Many reports of studies conducted at the Montreal Neurological Institute have appeared in past decades. Of about 700 references in this book, 12% are from the pen of one of the authors. An earlier volume on the same subject by Penfield and Erickson was published in 1941. In the present volume the material has been appreciably expanded. The eight color plates of the exposed brain were supplied by a pharmaceutical firm. The printing and the binding makes this a handsome volume. Words italicized in the text are the basis for the index, a useful innovation. In all respects the present volume far surpasses its predecessor, now long out of print.

The subjects discussed are of fundamental significance: history, definitions and classifications, cortical localizations, subcortical interrelationships, electrophysiology, epileptic mechanisms and epileptogenic lesions, seizures (somatic, motor, sensory, autonomic, psychic, and centrencephalic), automatisms, medical treatment, electroencephalography, cranial roentgenography, electrocorticography, surgical treatment, and clinical analysis. Detailed survey of this monumental work is not feasible.

Exposition of the site of origin of physical phenomena has been determined in large measure by electrical stimulation of the exposed brain. Deductions regarding the neurophysiology of the brain are based on electroencephalographic observations of animals as well as patients. Especially timely are the explorations, surgical and electrical, of the temporal lobes and adjacent or related areas of the brain with elucidation of the curious sensory hallucinations, psychic experiences, or sympathetic outbursts that may constitute a seizure. Electroencephalography, as portrayed by Jasper, deals with events behind the bony curtain of the skull, news relayed by means of electrodes placed on or within the brain; this is in addition to routine laboratory observations. These electrical events parallel but usually do not correlate closely with the surgical case records. Reproduction of recordings and analysis of them are above criticism. The author seems to overlook the fact that patients who come to this neurosurgical mecca are predominantly those with some brain damage acquired since conception, and hence the classification of their clinical phenomena and brain waves may not be appropriate for the large group of epileptics whose seizures are metabolic in origin.

Epileptics who submitted to these prolonged operative observations when in a conscious state have been prime contributors to this long-term research, but they also are beneficiaries of the knowledge gained. Operative results improved progressively with the years. McNaughton provides an excellent 28 page chapter on medical treatment. The 223 case histories portray the scientific facts about brain function. The social and physiological problems are perforce omitted; however, the final paragraph of the book (by Penfield) sums up the whole duty of the doctor: "Throughout the analysis of every case, the clinician should be, first and foremost, a wise physician and an understanding friend to the patient. He should weigh for him the chances of success by surgery and balance this against the best that conservative treatment can promise. He must see the whole problem in the perspective of the patient's own outlook upon life."

After such a close inspection of the trees, the reader might welcome a view of the forest. Such perspective might include the proportion of those referred for neurosurgical appraisal for whom exploration was advised or accomplished and a summing up of the incidence of various causes of epilepsy and of brain damage in the total group examined. The quadricentennial of the first complete book on epilepsy (Gabucinni's "Comitiali Morbo," 1561) approaches. The volume of Penfield, Jasper, and McNaughton is more nearly a hundred mile marker than simply a single milestone in man's progress toward a full knowledge of epilepsy and the human brain.

The Size and Growth of Tissue Cells. By Joseph G. Hoffman, Ph.D., Director of Cancer Research, Roswell Park Memorial Institute, Buffalo, New York. Publication number 172, American Lecture Series, monograph in American Lectures in Medical Physics, edited by Otto Glasser, Ph.D., Department of Biophysics, Cleveland Clinic Foundation, Cleveland, Ohio. Cloth. $4. Pp. 102, with 13 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This book deals with the problem of the size of cells. Although it was originally stimulated by cancer studies, the question of cell size is investigated in this brief but complete review from various aspects without specific reference to cancer. After a historical introduction, the questions why cell sizes are difficult to measure and why one would want to measure them are presented. This is followed by discussion of the mode of cell division, of time factors in the growth of tissues, and of the frequency distribution of cell sizes. The discussion is written in a fresh style, and many viewpoints not found in conventional histological or pathological texts are presented. The relatively few illustrations are technically excellent. For anybody interested in the morphological aspects of tissue growth and the cancer problem, this small book should make refreshing reading, acquainting him with aspects usually not emphasized.

Diabetic Care in Pictures: Simplified Statements with Illustrations Prepared for the Use of the Patient. By Helen Rosenthal, B.S., and Joseph Rosenthal, M.D., Physician-in-Charge, Diabetes Clinic, Boston Dispensary, Boston. Second edition. Boards. $3. Pp. 164, with 128 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

In this new edition the authors have presented a simple explanation of the cause of diabetes along with a discussion of its hereditary aspects. There is a good section on normal and diabetic diets with well-illustrated examples of food exchanges, and a discussion on the various kinds of insulin with specific illustrated instructions for management with insulin. The insulin reactions, acidosis, and diabetic coma are also discussed. There is an adequate, simple, illustrated section on the blood and urine tests. Other chapters are devoted to personal hygiene, social factors, and general care of the skin. This book is a simple, easily read manual that will be of great value to any person with diabetes. Unfortunately, the photographs are not well reproduced.

The Hand-Produced Book. By David Diringer, D.Litt., M.A. Cloth. $15. Pp. 603, with illustrations. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1953.

This book answers such questions as "What is a book?"; "How and when did the book originate?"; "On what material and with what tools was it written in past periods and in different lands?"; and "What contents did it have?" The present work supplies in a simple yet comprehensive way the quintessence of past knowledge and modern research, tracing the development of the book from prehistoric times down to the period in which the printed book replaced the hand-produced book. It discusses the achievements of such peoples as the Egyptians, Greeks, Romans, Jews, Persians, Indians, Chinese, Japanese, and many other peoples and faiths, including the Moslems, Christians, Buddhists, Celts, and Anglo-Saxons. The reader will learn not only about books themselves but also about the history of thought, the development of culture and social functions, the evolution of art, and the history of literature.

Essays on the Applied Physiology of the Nose. By Arthur W. Proetz, A.B., M.D., Sc.D., Professor of Clinical Otolaryngology in Washington University School of Medicine, St. Louis. Second edition. Cloth. $8. Pp. 452, with 130 illustrations. Annals Publishing Company, P. O. Box 1345, Central Station, St. Louis 1, Mo., 1953.

According to the author, the first edition of this book has been revised, amplified, modernized, and embellished to the utmost of his resources and abilities. In view of the favorable impression made by the first edition, the result of this revision is disappointing.

Hypnotism: An Objective Study in Suggestibility. By André M. Weitzenhoffer. Cloth. $6. Pp. 380, with 7 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1953.

This is an important critical evaluation of hypnotic techniques and current research. The author holds degrees in physics, biology, mathematics, and psychology and has engaged in physiological research and teaching. This background and an extensive experience in hypnosis qualify him to evaluate the psychophysiological basis of hypnotism. Hypnotism, a long-neglected stepchild of medicine, is correlated with certain aspects of communication theory, neurophysiology, and psychobiological or psychosomatic processes. Most of the literature on the experimental applications and theory of hypnosis and suggestibility is collated and carefully examined. Established facts are separated from questionable data. The book is divided into four parts dealing with orientation, intrinsic characteristics of hypnosis and suggestibility, extrinsic characteristics, and theoretical formulation. In the last section, old and modern theories of hypnosis as well as the psychophysiological nature of suggestibility and hypnotic phenomena are analyzed. The author advances a new theory, namely, that hypnosis first results from ideomotor action (suggestibility) and neuromotor enhancement (homoaction). The latter is often aided by the subject's natural tendencies.

More specifically, the theory proposes the following ideas: 1. Suggestibility phenomena have a multiple origin. They are the expression of a number of different mechanisms or processes which act in unison or separately. Pretrance phenomena occurring during induction of hypnosis have a different origin from those of later phases of trance induction. 2. Hypnosis itself is a state of hypersuggestibility arising from an orderly sequence of psychosomatic and somatopsychic interactions. It is a psychic as well as a physiological state and differs from the normal waking state in a number of respects. Its characteristic of hypersuggestibility arises through two different mechanisms, one causing homoactive and the other, heteroactive hypersuggestibility. 3. Psychologically speaking, hypnosis is a state of altered awareness that determines the subject's behavior when hypnotized. That is, the subject behaves as he does because it is the most consistent form of behavior for him in terms of his actual perceptions. 4. The psychophysiological basis of suggestibility is ideomotor action, itself a form of conditioning. 5. The physiological bases of hypersuggestibility are neuromotor enhancement and abstract conditioning. 6. The psychophysiological basis of the hypnotic alteration of awareness is a combined selective inhibition and excitation of various cerebral regions leading to a dissociation of awareness from all stimuli except the voice of the hypnotist, unless otherwise specified by suggestions. 7. Through hypersuggestibility and dissociation of awareness, the words of the hypnotist acquire the value of actual stimulus objects. His voice becomes an extension, so to speak, of the subject's psychic processes. This opens the way to a large variety of perceptual alterations. As the hypnotic induction progresses, abstract conditioning makes its appearance and eventually gives rise to a state of heteroactive hypersuggestibility or hypnosis.

Hypnosis frequently occurs in the absence of trance-inducing suggestions, and many subjects respond almost as well to suggestions given in the waking state as in the lighter stages of hypnosis. Ample evidence indicates that there is a continuum between primary suggestibility and hypnosis, and that drug hypnosis, true sleep, and nondrug hypnosis are distinct phenomena having certain equivalent characteristics at various levels. Scales are presented for measuring the degree of suggestibility and depth of hypnosis and the percentage of persons susceptible at each level. Such hypnotic phenomena as post-hypnotic suggestions, amnesia, paramnesia, catalepsy, dissociation, and age regression are discussed in detail. These phenomena are not all present in the same subject, but their appearance is more readily evoked by relaxation, as is the hypnotic state per se. Controversial problems, including the subject's ability to resist hypnosis, dehypnotization (awakening), possible antisocial uses, and the hypnotic subject's ability to exceed normal capacities involving will power, are debated. Weitzenhoffer believes that increased abilities for performing a given task are potentially present in the waking state but are enhanced or brought to the fore during hypnosis; therefore, in evaluating experimental evidence one must establish maximum performance in the waking state before examining the hypnotic subject's capacity for transcending his normal voluntary capacities. Hypnosis does not abolish or alter the will of the subject, nor does it mean that the subject is weak willed. The author contends that hypnotized persons mold their reactions to suggestions not only by the content of these suggestions but also by their own personality structures. Animal hypnosis is differentiated from hypnosis produced in human beings. It is unfortunate that the chapter on psychodynamic manifestations following hypnotic suggestion is rather brief, as is the material on psychosomatic relationships of hypnosis and suggestibility to clinical medicine. These minor faults are compensated for by the excellent textbooks on these subjects suggested by the author to the interested reader. The material is well organized, and each section has a good summary. The typography is excellent. Several interesting diagrams throughout the book help illustrate the theoretical formulations. An exhaustive bibliography arranged for easy reference, and a good author and subject index are present. This classic contribution on the experimental foundations of hypnosis and suggestibility is a *sine qua non* for beginning and advanced students of hypnosis and suggestive therapy.

Atlas der systematischen Anatomie des Menschen. Band I: Systema sceleti, juncturae ossium, systema musculorum. Von G. Wolf-Heidegger, Dr. med. et phil., o. Professor der Anatomie und Prosektor am anatomischen Institut der Universität Basel. Cloth. 32 Swiss francs. Pp. 218, with 347 illustrations. S. Karger, Holbeinstrasse 22, Basel; American agent—Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1954.

This book, dealing with the skeleton, joints, and musculature, is the first volume of a comprehensive atlas of human anatomy. Volumes 2 and 3 will deal with the viscera, central nervous system, sensory organs, peripheral nerves, and blood vessels. Most of the figures are excellently executed drawings in color. The section on osteology contains instructive roentgenograms accompanied by explanatory line drawings. Illustrations indicating the muscle insertions in various parts of the skeleton are included in appropriate places in the section on musculature, so that the student will not have to refer back to the section on the skeleton while studying the musculature. The sketches of surface anatomy accompanying the figures of superficial dissections of the musculature are also helpful. Although this atlas ranks with the best in the field, one point related to its didactic value should be raised. The artist, in his attempt to attain a high degree of clarity, has achieved a certain unrealistic "beautification," and the figures have taken on a somewhat schematic resemblance to dissected material. A certain degree of schematization cannot be avoided in drawings of gross anatomic dissection, but it should be balanced by a deliberate effort toward realism. The author has wisely decided to omit a text. An atlas text, because of its necessary brevity, is almost purely descriptive and cannot replace a textbook account.

Spatial Vectorcardiography. By George E. Burch, M.D., F.A.C.P., Henderson Professor of Medicine, Tulane University School of Medicine, New Orleans, J. A. Abildskov, M.D., Instructor in Medicine, Tulane University School of Medicine, and James A. Cronvich, M.S., Professor of Electrical Engineering, Tulane University College of Engineering. Cloth. $5. Pp. 173, with 121 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

In June, 1952, the authors displayed an exhibit on spatial vectorcardiography at the meeting of the American Medical Association in Chicago, which received so much favorable comment that the authors have reproduced the exhibit in book form. The only changes made were to reduce the colored illustrations to black and white and to make some minor changes in the text to conform to book style. Spatial vectorcardiography is not an easy subject to comprehend, but the authors have gone to great lengths to make this subject generally understandable. Therefore, for those who have had difficulty in making sense out of the complicated papers on this subject in the literature of recent years, this book is required reading. A list of references is included.

QUERIES AND MINOR NOTES

VALUE OF ROUTINE LABORATORY TESTS

TO THE EDITOR:—*What is the value of the routine laboratory work, so-called complete blood count and urinalysis, done on nearly all patients on admission to a hospital? Is there statistical evidence that these examinations make or confirm admission diagnosis or that they influence the treatment of the patient?*

J. Roger U. Campbell, M.D., Gilroy, Calif.

This inquiry was referred to four consultants, whose respective replies follow.—ED.

ANSWER.—It would seem that routine laboratory work consisting of a blood count and urinalysis should be carried out on all patients on admission to a hospital. A famous physician three decades ago stated that 85 or 90% of correct diagnoses could be made by a good general practitioner, assuming he was able to get a good history, carry out a satisfactory physical examination and make a urinalysis and a blood count. Routine laboratory tests, such as blood counts and urinalyses, would in some instances reveal the presence of diabetes, renal disease, and occasionally various lymphopathy. When a patient is admitted to the hospital, an x-ray of the chest, along with the other two laboratory examinations, should be considered a basic test. After careful physical examination and careful digest of the patient's history, other laboratory tests might be indicated. For example, if the patient came in complaining of an inguinal hernia and appeared perfectly well in all other respects, it would seem that a physical examination, blood count (hemoglobin determination, erythrocyte count, and leukocyte count), and urinalysis are all that would be necessary before proceeding with surgical repair of the hernia. A patient whose complaint was the presence and increasing enlargement of an inguinal hernia was seen recently. Roentgenographic study of the chest revealed widening of the mediastinal shadow. The routine blood count showed a marked elevation of leukocytes. The patient had lost 30 or 40 lb. (13.6 or 18 kg.) of weight and complained of weakness. A differential blood count showed that he had lymphatic leukemia and, along with this, ascites, which accounted for the increasing size of the inguinal hernia. The value of routine laboratory work cannot be overemphasized, but it should agree with the physical findings. Today, perhaps more than in the past, we are prone to make a diagnosis based on laboratory findings alone. This indeed is a fallacy when the laboratory findings do not agree with the physical findings, which means the laboratory tests should be repeated. The basic laboratory tests of hospitalized patients definitely should be made.

ANSWER.—There is undoubtedly value in having routine complete blood counts, urinalyses, and serologic tests on admission of all patients to a hospital. There is no question that a considerable number of patients are benefited by the discovery of some abnormalities in these tests. Even if the percentage is low, it is still important to the affected patients. When these tests do influence or confirm a diagnosis, they must logically influence the therapeutic regimen that is established for the patients.

ANSWER.—There may be some difference of opinion as to the value of routine laboratory work in general. There is very little question, however, that a complete blood count and urinalysis should be carried out on all patients admitted to a hospital. These tests are simple and usually accurate, and not infrequently they uncover disease that would be otherwise overlooked. As far as known there is no statistical evidence to support these statements, and it probably would be impossible to collect valid statistics on this question.

ANSWER.—The value of laboratory work depends, in the first instance, on the accuracy of the techniques employed and the judgment of the physician in evaluating these results in the light of his general knowledge and experience. Each one of the "routine" tests may disclose a condition that would otherwise be overlooked, may indicate a definite diagnosis, or may reveal various states that would have important contributory effects. Space hardly permits a detailed discussion of each of the various routine laboratory tests of the blood, urine, and stool. Measurement of hemoglobin, for instance, may suggest polycythemia. A marked anemia, in the instance of a patient with coronary occlusion, may suggest blood loss from a bleeding peptic ulcer, which, with low hemoglobin and perhaps fall in blood pressure, was the precipitating cause of the acute myocardial infarction and which would be adversely affected by continued bleeding. The presence of anemia may be the clue to the diagnosis and treatment of 20 or 30 other conditions. Each of the other tests is of similar value.

This consultant knows of no statistical evidence regarding the extent to which these examinations make, influence, or confirm admission diagnoses. If such statistics exist, they would nevertheless have to be interpreted in the light of the competence and experience of the physician utilizing the tests. Actually such statistical evidence is hardly necessary since the value of these tests is exemplified in everyday experience. It is worthy of note that, in an age of expensive medications and complicated tests, these simple laboratory procedures are relatively inexpensive and make many other more elaborate investigations frequently unnecessary.

KEROSENE POISONING

TO THE EDITOR:—*A 4-year-old child had been treated with kerosene enemas for amebiasis. My opinion was asked of the safety of this therapy. Is there a potential danger in this? What is the lethal dose?*

B. C. Collins, M.D., Memphis, Tenn.

ANSWER.—Although there are many reported cases of poisoning from the ingestion of kerosene, the precise fatal dose is not known. The ingestion by young children of as little as a few ounces has been known to cause death. Death from kerosene poisoning is usually due to pulmonary edema and is characteristically preceded by evidence of injury to the central nervous system in the form of profound depression and convulsions. Although no example of poisoning due to kerosene enemas was found in the recent literature, this is probably due to the infrequency with which this type of therapy is used, rather than to its safety. It is reasonable to believe that a dangerous amount of kerosene may be absorbed from the lower intestine. Incidentally, there does not appear to be any pharmacological rationale for the use of kerosene enemas in the treatment of amebiasis.

TINTED WINDSHIELD GLASS

TO THE EDITOR:—*I would appreciate information regarding tinted windshield glass for trucks.*

Ralph I. Kreisberg, M.D., New York.

ANSWER.—In considering the use of glasses to reduce overhead brightness either indoors or out, it is to be remembered that a visor or a broad-brimmed hat is a most effective shield and will frequently obviate the necessity for sunglasses. The Committee on Industrial Ophthalmology condemns the use of any type of "night-driving lens." Any such lens, whether colored, reflecting, or polarizing, reduces the total light transmitted to the eye and renders the task of seeing at night more difficult. Similarly, it condemns the use of colored windshields (which may prove a hazard at night) or the promotion of removable or polarizing shields as a useful aid in night driving (*Tr. Am. Acad. Ophth.* **57**:290 [March-April] 1952).

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SCHÖNLEIN-HENOCH SYNDROME

TO THE EDITOR:—*Please give information on diagnosis and treatment of Schönlein's disease.*

T. H. Wallis, M.D., Ocala, Fla.

ANSWER.—By Schönlein's disease it is understood that the inquirer refers to the Schönlein-Henoch syndrome. This syndrome can be defined as a condition of unknown cause that clinically shows a combination of a usually purpuric eruption with joint pains and/or gastrointestinal symptoms, such as abdominal pain, vomiting, or bloody diarrhea. Nephritis may also be an associated finding and much less frequently rheumatic fever and polyarteritis nodosa. Schönlein in his original description called attention particularly to the associated joint symptoms while Henoch stressed the gastrointestinal manifestations.

The clinical course of the syndrome, which often occurs in children, is variable. There may be one attack or there may be recurring attacks for periods of a few months up to many years. The attacks may begin with symptoms from any of the three sites, the skin, intestine, or joints. The exanthem tends to occur in crops, especially on the extensor surfaces of the extremities. At first the lesions are frequently small, discrete, somewhat itchy, urticae that within 24 hours flatten, become darker and usually purpuric, and reach sizes of 0.5 to 2 cm. in diameter, by which time they may become confluent in places. These lesions generally subside after two weeks but may leave some hemosiderin pigmentation. The lesions are not always frankly purpuric. They may sometimes be induced, after a latent period of 12 to 24 hours, by local pressure or manipulation. Frank urticaria and angioneurotic edema can also occur. The joints, especially of the distal parts of the extremities, tend to be involved, with only pain and swelling. Ankylosis and radiologically demonstrable changes do not develop.

Pathologically the syndrome is believed based on an acute aseptic inflammatory reaction, sometimes with tissue eosinophilia around small blood vessels of the areas involved. When severe, this reaction can amount to a necrotizing arteriolitis. In skin biopsies these changes can readily be seen in the upper corium and the diagnosis easily made. Blood cell counts, platelet counts, bleeding time, coagulation time, clot retraction, prothrombin time, capillary fragility tests, and sedimentation rate are usually all normal. Occasionally leukocytosis, elevation of the sedimentation rate, increased capillary fragility, and low-grade fever have been reported. The prognosis in uncomplicated cases is good. Streptococcic infections have been said to precede the syndrome in at least 50% of the cases.

Therapeutic attempts with vitamins C, P, and rutin, antihistamines, antibiotics, and elimination of suspected allergens have been made with variable success, but evaluation is very difficult because of the extremely variable course of the syndrome. None of these measures alone or in combination have been consistently effective. The skin lesions and systemic symptoms can be held in suppression with corticotropin (ACTH) or cortisone.

DECIDUAL CELLS IN UTERINE SCRAPINGS

TO THE EDITOR:—*A 34-year-old woman, who has one child, aged 14, was admitted to the hospital for profuse menstruation over a six month interval. After a dilation and curettage the pathologist reported decidual cells present but no chorionic villi. The pathologist states that this usually means pregnancy. The patient states that she has not had any intercourse for 10 years. Are there any other conditions in which decidual cells would be present in the uterine scrapings?*

M.D., Connecticut.

ANSWER.—The presence of decidual cells in uterine curettings does not necessarily imply either a concurrent or a prior pregnancy. Such cells occur commonly in the late progravid or secretory phase of the endometrial cycle, and they are evidence only of the facts (*a*) that progesterone has been present in sufficient quantity and for sufficient length of time to cause such a response and (*b*) that the tissue is capable of responding to this influence of progesterone. In addition to the cells of the endometrial stroma, other tissues that may show a similar response include the cervical stroma, the stroma beneath the mucous membrane of the fallopian tube, the ovarian stroma, and the subperitoneal stroma. However, these latter tissues ordinarily require a heavier progesterone influence than is found in the menstrual cycle, and decidual response is uncommon except in pregnancy.

HEAT EXHAUSTION

TO THE EDITOR:—*A man overcome with heat while working in a kitchen had all the typical symptoms of heat exhaustion. He went home to bed and lay there six days without treatment, became progressively worse, and on the sixth day was removed to the hospital. The attending physician (not myself) diagnosed the condition as heat exhaustion on admission. The man died a few hours later and the death certificate stated "death due to exhaustion." Is it possible that the heat exhaustion suffered six days previously could have progressed, without treatment, to the point of death?*

M.D., Texas.

ANSWER.—In considering this problem it is necessary to examine two types of disturbances that may result from exposure to an excessively high environmental temperature. One is heat stroke and the other is heat exhaustion.

In heat stroke, the heat regulatory mechanisms of the body are disturbed and the internal body temperature rises and tends to remain high even after the victim is placed in a relatively cool environment. Rectal temperatures of 108 F or higher are likely to occur. The skin remains dry. The rise in body temperature usually leads to confusion, delirium, collapse, and coma and often terminates in death within 24 to 48 hours, unless effective measures are taken to reduce it. Although death or recovery from heat stroke usually occurs within 48 hours, this is not invariably true. In 15 of the 90 fatal cases of heat stroke studied by Malamud, Haymaker, and Custer, death occurred between the 2nd and 12th days after the onset of hyperthermia.

There may be moderate, mild, or no rise in internal body temperature in heat exhaustion. Sweating is not inhibited. The outstanding characteristic of this disorder is subjective exhaustion with physical incapacity for work. It is probable that heat exhaustion does not differ significantly from the exhaustion that follows excessive and protracted physical exertion in any environment.

The possibility that this man died of heat stroke cannot be excluded on the basis of the information supplied. If he died of heat stroke his rectal temperature would have been greatly elevated during most or all of the period that elapsed between the hyperthermic exposure and death. Human beings do not ordinarily die of heat exhaustion per se, although heat exhaustion like any other episode of stress may constitute an intolerable burden on the heart or vascular system of a person suffering from preexisting but theretofore unrecognized cardiovascular disease.

CORONARY DISEASE AND AORTIC ANEURYSM

TO THE EDITOR:—*Do coronary artery disease and aortic aneurysm frequently coexist? Please discuss the pathogenesis as regards similarities and differences, as well as signs, symptoms and tests that might substantiate their coexistence.*

M.D., Iowa.

ANSWER.—Coronary artery disease and aortic aneurysm may coexist, but the relationship is usually a fortuitous one. The aneurysm formation is the result of degenerative changes of the media. Since these changes are as a rule due to syphilis, aneurysms, at least in the thoracic aorta, are almost exclusively syphilitic in origin. Atherosclerosis, which is a disease of the intima, not uncommonly leads to diffuse dilatation of the aorta when secondary changes in the muscle coats of the large vessels occur. Although syphilis is of minor significance in the production of coronary disease, it is nevertheless true that coronary sclerosis, angina pectoris, and myocardial infarction have a higher incidence in syphilitic than in nonsyphilitic patients.

Aneurysm of the thoracic aorta should present no difficulty in diagnosis if a careful history, physical examination, and radiological examination are carried out. Silent aneurysms are detected by fluoroscopy of the chest. When productive of symptoms or physical signs, these depend upon the adjacent thoracic structures that are encroached on. The variety of clinical pictures that may occur were described at least as early as 1738 by Giovanni Lancisi, and can be found in standard textbooks of medicine. Angina as a consequence of a thoracic aneurysm is rare. In the absence of aortic insufficiency, syphilis of the cardiovascular system is not often a cause of angina. When cardiovascular syphilis is suspected and serologic tests are negative, examination of the cerebrospinal fluid may at times be a helpful test.

ANGULATION OF THE COCCYX IN CHILDBIRTH

To the Editor:—*A woman, aged 25, who has been married three years and has not been pregnant, has some mild osteoarthritic changes of the spine. Otherwise she is in good health. On routine roentgenogram the coccyx at the first joint was found to angulate at 90 degrees directly forward. The cause is not known. She now is desirous of getting pregnant, but the position of the coccyx would obviously cause dystocia in spite of fairly adequate pelvimetry. The question is whether to perform surgical removal before pregnancy or to wait, and if necessary, fracture the coccyx at the time of delivery.* *M.D., Illinois.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—On the basis of the information supplied, it is believed that this patient should be allowed the chance of delivering through the pelvis. In general, if the problem relates only to the coccyx, a successful vaginal delivery should be expected.

Answer.—Angulation of the coccyx rarely produces unusual difficulties in delivery unless they are a part of general pelvic deformities. In most instances the mobility of the cervix permits delivery without fracture. It would seem to be advisable to await delivery and take whatever measures seem necessary at that time, especially since this patient has had no pregnancies in her three years of married life.

CEREBRAL HEMORRHAGE

To the Editor:—*What is the present status of use of anticoagulants in cerebral hemorrhage and cerebral thrombosis?* *M.D., Wisconsin.*

Answer.—There is no good evidence that anticoagulants have any place in the therapy of cerebral hemorrhage or cerebral thrombosis. Certainly they are contraindicated in cases of cerebral hemorrhage but even in cases in which typical cerebral thrombosis appears to be present, the use of anticoagulants has led to fatal intracerebral hemorrhage. It is difficult to understand what anyone could hope to accomplish in the treatment of such cerebrovascular disease with anticoagulants.

HYPERCHOLESTEREMIA

To the Editor:—*I understand that hypercholesteremia has an important etiological bearing in arteriosclerosis and I suspect there is as yet nothing very practical or efficient in its treatment. Is hypercholesteremia harmful in itself or does it require treatment for any reason other than because of the etiological factor referred to?* *M.D., Minnesota.*

Answer.—Hypercholesteremia in a patient has significance beyond its possible role in the pathogenesis of atherosclerosis. Hypercholesteremic hyperlipemia may be present in several clinical entities, e. g., biliary obstruction, hypothyroidism, diabetes mellitus, the nephrotic syndrome, and hyperadrenocorticism (spontaneous or iatrogenic), as well as in essential hypercholesteremic (familial) xanthomatosis. Hence the observation of hypercholesteremia compels a thorough clinical work-up to establish whether or not any of the foregoing diseases is present. Hypercholesteremia without disease in any of the foregoing organ systems must then be classified as an essential xanthomatotic tendency or as frank essential xanthomatosis. The possibility of skin and/or tendon lesions developing must be kept in mind. With moderate elevation, these are unlikely. In this circumstance, a xanthomatotic tendency—except for its threat to the arteries—is benign. However, vascular lesions are a constant and serious danger, particularly in the male of the species. In such cases there are often moderate to marked falls in plasma cholesterol levels with a diet moderate in calories and low in fat (less than 50 gm. of total lipid per day). Hence it is not valid to state that "there is as yet nothing very practical or efficient in its treatment."

ASCHHEIM-ZONDEK TEST

To the Editor:—*In* The Journal, *Nov. 28, 1953, page 1229, it was stated that several conditions other than pregnancy, hydatidiform mole, or chorionepithelioma can cause positive Aschheim-Zondek or Friedman tests. Further comment in* The Journal, *Feb. 20, 1954, page 730, by a different author, stated that only the aforementioned three conditions can give positive pregnancy tests, provided the test is performed under proper conditions. Neither mentioned the fact that several reports have been recorded in the literature of urinary gonadotrophin levels in cases of dysgerminoma of the ovary high enough to give positive Aschheim-Zondek tests, in which extensive pathological sections have shown complete absence of any chorionic tissue in the tumor.*

Selye (Textbook of Endocrinology, ed. 2, Montreal, Acta endocrinologica, Université de Montréal, 1949, p. 449) has stated that dysgerminoma is associated with increased chorionic gonadotrophin levels. Barzilai (Atlas of Ovarian Tumors, New York, Grune and Stratton, Inc., 1943, p. 93) mentions that, although neither male nor female sex hormones have ever been demonstrated in the tumor itself nor in the body fluids of these patients, sufficient pituitary-like hormones to give a positive Aschheim-Zondek test exist. Salmon, quoted by Geist (Ovarian Tumors, New York, Paul B. Hoeber, Inc., 1942, p. 290), isolated a gonadotrophic hormone from a dysgerminoma. Burge (Am. J. Obst. & Gynec. *57:1014, 1949) reported two cases of ovarian dysgerminoma associated with positive Aschheim-Zondek tests, in spite of proved absence of gestation or choriocarcinoma. In both of these cases the Aschheim-Zondek test became negative after the tumor was removed. Hain* (J. Clin. Endocrinol. *9:1349, 1949) reported a case of dysgerminoma in a child in which only 3 cc. of unextracted urine caused marked uterine enlargement in immature mice. After removal of the tumor the test was negative. Hain also enumerates five other cases reported in the literature, each a dysgerminoma with increased excretion of chorionic gonadotrophins. None of these patients showed chorionic tissue in the dysgerminoma after multiple sections.*

Seminoma of the testis is believed to be the male counterpart of the dysgerminoma, and in a case of seminoma reported by Pedowitz and Grayzel (Am. J. Obst. & Gynec. **61:***1243, 1951) the Aschheim-Zondek test was positive, even though no chorionic tissue was found. Hain reported a similar case in his above-mentioned paper. It can thus be seen that a significant number of positive Aschheim-Zondek tests associated with dysgerminoma of the ovary, a relatively rare tumor, have been reported. The fact that all the positive results became negative after removal of the tumor confirms the presence of an increased gonadotrophin level associated with these cases.*

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